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Cover Story

It's cold, it's bleak, it's November, it's five people seeking shelter in a concrete culvert pipe. Why a cover photo? Simply because after looking at several hundred slides, coloured and black and white photos, this one appealed to me the most,and it does tie in which our article for this special agribusiness issue by Professor R.S. Broughton, on the Department of Agricultural Engineering's work over the past 10 years with the National Capital Commission. From left to right our cover people are: David Monaghan, Stephen Ami, Murray Amirault, Edward McKyes, and Robert Bonnell.

We would like our subscribers to be not only readers but also contributors to the Journal and, therefore, would be extremely pleased to receive long letters or short articles — pro and con — on Macdonald's role vis-a-vis the business community or anything else that may interest you. May we hear from you?

A Sabbatical Year with a Difference

Professor H.R. Klinck
epartment of Plant Science

e idea for a unique sabbatical came om Mr. Byron E. Beeler, Executive ce-President of Ciba-Geigy Seeds d. In August, 1980, Mr. Beeler was ldressing a meeting of the Associa-n of the Faculties of Agriculture in nada on the topic "The Educated raduate, Fact or Fiction?" In the urse of his remarks he indicated that t only are many of our graduating udents lacking in practical owledge, but also that professors aching agricultural students fre-ently lack experience in and contact th the "real world." It was these mments that sparked my interest d his statement: "professors aching plant breeding or seed chnology courses, for example, ould spend some time with a com-ny like ours," that prompted me to cept the challenge.

In planning for a 12-month sab-tical leave during 1982-83 I decided forego direct involvement with search at other institutions and to ncentrate on a different approach. e plan was to spend one to two nths each with the seed industry, a wn agency concerned with the pro-ction and marketing of cereal ains, and government enforcement encies dealing with grain and seed vs in Canada. Acting as an observer d consultant, my purpose was bfold: First, to gain a broader rspective of the operations of the ed and grain industries in Canada d an insight into some of their pro-ms and hence to provide a stronger se for my teaching material and, se-nd, to foster better understanding tween the organizations concerned d the cereal crop breeding fraterni- as well as the academic com-nity.

The approach was unique for a sab-ticant from a Canadian Faculty of riculture, and I was well received by participating organizations.

It is not difficult, by reference to ap-opriate published material, to get a neral idea of the structure and func-n of most organizations. It is even sier, if one has time and travel ds, to arrange for tours of organiza-tions' facilities. Neither of these, however, can provide the insight into problems that arise daily — or the opportunity to become acquainted with the staff that result from being essentially a part of the organization for a month or two.

Ciba-Geigy Seeds

The months of October and November, 1982, were spent at Ciba-Geigy Seeds in Ailsa Craig, Ontario. Ciba-Geigy is a well-known multinational firm dealing primarily with pharmaceuticals. A number of years ago the company purchased Stewart Seeds, an organization active both in the marketing of cereal and corn seed and the breeding of corn, spring barley, and winter wheat.

In order to have a focal point for my activities while at Ciba-Geigy Seeds I undertook to survey the wild bird seed market. At the same time there was ample opportunity to discuss seed marketing, crop breeding and testing, seed conditioning, and related matters. The bird seed project gave me an opportunity to discover first hand some of the problems encountered in conducting a market survey.

In their seed conditioning enterprise the company has large quantities of tailings (small and damaged crop seeds and weed seeds) to dispose of. These are normally sold for livestock feed, although much of the small corn seed is sold as feed for fancy pet pigeons. The purpose of my project was to find out whether or not the tailings could be marketed profitably as feed for wild birds. The study entailed determining what bird species normally visit backyard feeding stations in southern Ontario, what their food preferences are, the extent to which the available tailings would satisfy these preferences, the potential market for wild bird seed, and the costs of reconditioning the available materials to a form acceptable by birds (for example, removing the hulls from oats), and of providing supplemental components for a wild bird seed mixture, such as sunflower seed.

I learned that the wild bird seed market is a large one, comprising annual retail sales of several hundred tons in the city of London, Ontario, alone. Such material is supplied wholesale by many seed firms, feed mills, and specialized farms and is retailed by a wide variety of grocery stores, pet food shops, feed and seed stores, and general hardware supply outlets. There appears to be no consistency in components of seed mixtures, no government regulations as to the acceptability of components, no standardization of packaging materials or sizes and no uniformity in retail prices. There is considerable concern among farmers in southwestern Ontario that a significant component of most wild bird seed mixtures, namely proso millet, is creating a serious weed problem. The problem of contamination of gardens and fields from private bird-feeding stations may have to be dealt with by legislation requiring the sterilization of components to render the seeds non-viable.

The two-month period allowed time to conduct the market study and to recommend to the company how their waste products might be utilized. A longer period would have been necessary to study the market development phase. There was also time for a complete tour of the Ciba-Geigy corn seed conditioning plant at Cottam and to visit seed corn production fields for a look at the methods used and the problems that arise.

It is worth noting that a student from the University of Guelph was working at Ciba-Geigy during the fall semester as part of his in-course practical training. Thus, the company is making a contribution toward educating agricultural students — and professors!

Canadian Wheat Board

My second visit was with the Canadian Wheat Board during the month of February, 1983. This organization is well known for its activity in export sales of Canadian wheat and other grains. It is a crown agency established by the Canadian Wheat Board Act of 1935. It has three major responsibilities:

1. To market wheat, barley, and oats grown in western Canada to the best advantage of grain producers,
2. To provide price stability to prairie

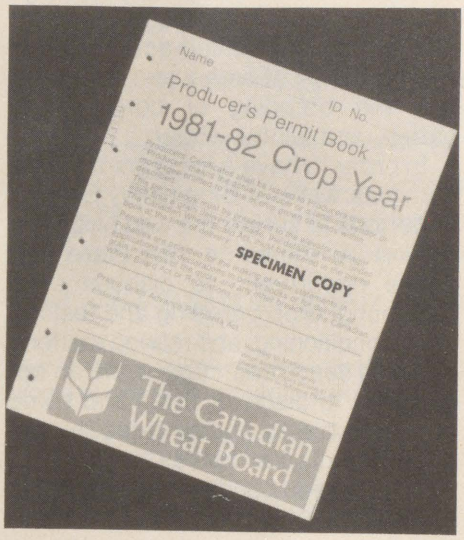
grain growers through an annual "pooling" or price averaging system, and

3. To ensure that every producer obtains a fair share of the available grain market each year.

I found it very useful to have a period of time set aside to permit uninterrupted concentration on the organization and operation of the Board. I soon discovered that with a staff of close to 600 people, operating in its own eight-storey building in Winnipeg, the Canadian Wheat Board is a tremendously complex organization. While I was able to get some perspective of how different segments of the Board interact, both with each other and with external agencies, to achieve its ultimate goals, only a relatively superficial glimpse was possible during the one-month period.

Most of my time was spent with the Market Development Division and the Market Analysis Department, but there was ample opportunity to meet personnel in the Weather and Crop Surveillance Department, the Information Department, and the Transportation and Sales Divisions. Only a few aspects can be described here.

Market development consists mainly of research and analysis of potential markets and of the suitability of Canadian grains for various markets, and promotion of the use of Canadian grain in these markets. Among other things, the market development staff organize contract programs to encourage the production on prairie farms of new cereal crop cultivars. In 1983, for example, contracts were let for the production of Harrington, Norbert, Argyle, and Glenn barleys, Fielder and HY 320 spring wheats, and OT 224 oats. Such production is designed to ensure adequate supplies of these cultivars for the market testing and development program. Of particular interest is HY 320 spring wheat, as yet unlicensed, since it represents a new "3M" class of white-grained wheat. While this class does not yet have official sanction, potential markets exist for wheats with medium protein content, medium gluten strength and medium hard kernels, and with the ability to yield 15-20 per cent above standard bread wheats.



Under the Wheat Board's delivery quota system each producer holds a permit book in which grain deliveries to county elevators are recorded.

The objective of market analysis is the development of a strategy that will maximize the revenue from grain sales in a market where prices are constantly fluctuating. Thus, the Market Analysis Department is charged with the task of obtaining and analysing information relating to grain markets from world-wide sources. Analysts have access to computerized data banks, centralized market files, international wire services and library facilities, as well as contacts with Wheat Board agents and overseas trade commissioners. In addition, they visit customer countries.

Of equal importance is the work of the Weather and Crop Surveillance Department where weather data from some 72 countries is assembled daily and analysed with a view to predicting grain crop production prospects in both competitor and potential customer countries. Modern computerized equipment facilitates the production of coloured graphs and maps to assist in the analysis.

For an organization of the magnitude and complexity of the Canadian Wheat Board to operate well, an effective internal communications system must be in place. I was impressed by the efficient communication among Departments and Divisions, not the least of which occurred in the cafeteria during coffee breaks or lunch hour!

The financial operations of the Wheat Board lead to the accumulation of certain funds which can be used to provide scholarships to students in

One of the 2,000 hopper cars owned by the Wheat Board for transporting grain from primary to terminal elevators.

airie universities to assist in conducting research projects of relevance to e Board's activities.

Wheat Board officials expressed interest in my sabbatical program and indicated the desirability of university rsonnel having closer contact with e Board, in particular those specializing in economics. Thus, while there is me contact with the university, the uation could be improved.

Unlike my Ciba-Geigy visit, I did not cus my attention on a specific pro-ct. This is hardly practical during a ort period of time. One could spend y given amount of time, but a three-nth work period with a defined pro-ct would be a useful approach.

anadian Grain Commission

Located in a modern 16-storey ucture, a short distance from the heat Board building in Winnipeg, is Canadian Grain Commission where pent the month of March. The Com-ission, operating under the Canada ain Act and responsible to the nister of Agriculture for Canada, is ganized into five Divisions: Ad-nistration and Finance, Grain In-ection, Grain Weighing, Economics d Statistics, and the Grain Research boratory. During my visit I was given e opportunity to observe and discuss e operations of the Divisions and to tter appreciate their role in nada's grain marketing system. eir prime functions are to establish d maintain standards of quality for nadian grain and to regulate grain ndling in Canada to ensure a depen-ble commodity for domestic and ex-rt markets. Unlike the Canadian heat Board, which serves prairie mers, the Grain Commission's ac-ties are Canada-wide and include grading of oilseed and pulse crops addition to the cereals.

The Grain Inspection Division nitors all grain shipments through minal and transfer elevators to en-re that grade requirements are intained, including freedom from in-ct infestation. In the protein gregated grades of wheat they also nfirm that the protein content is intained. In addition, inspectors ex-ine and report on the condition of uipment and facilities of licensed vators. Thus, inspection personnel available to service some 24 terminal elevators from Thunder Bay to the west coast and 27 transfer elevators in eastern Canada. Approximately 400 persons are employed by the Division throughout Canada.

Of particular interest to me was the aspect of cultivar identification in the Grain Inspection Division. Grades of red spring wheat, for example, are based in part on quality associated with specific cultivars. Cultivars having acceptable quality as milling wheat must be identifiable on the basis of kernel characteristics — size, shape, colour, etc. A cultivar resembling quality wheats, but itself deficient in quality, could create problems if it got mixed with the acceptable material. New cultivars developed for western Canada either must have acceptable milling quality or must be distinguishable from quality wheats on the basis of kernel characteristics.

This system, while necessary for prairie wheats, has created problems for wheat breeders in eastern Canada where milling type spring wheats are not extensively grown. The problem lies in the fact that once a cultivar is licensed under the Canada Seeds Act it can legally be sold anywhere in Canada. Eastern feed wheat breeders must ensure that their new cultivars, if they lack milling quality, are distinguishable from bread wheat types in order for them to be licensed. Solutions to the problem demand either a new method of cultivar identification, an affidavit delivery system based on cultivar identification of the growing crop, or a change in the licensing procedures, such as approving new cultivars for specific regions only. All of these possibilities are currently being examined by appropriate organizations.

The Grain Weighing Division, employing about 250 persons, supervises the weighing of all grain that is received by or shipped from terminal or transfer elevators, as well as routinely examining and testing weighing equipment to ensure accuracy.

The Economics and Statistics Division is responsible for issuing elevator licenses, providing certificates of weight and grade of carlots of grain, and collecting, compiling, and publishing statistics dealing with grain, as well as other functions. The licensing of elevators ensures that the facilities are adequate to maintain the quality of the grain passing through on its way to the market. The Division has a staff of about 90 persons.

Another important segment of the Commission is the Grain Research Laboratory. With a staff of some 90 persons, a number of whom are trained research scientists, the Laboratory is responsible for assessing the quality of each new crop of grain, monitoring the quality of grain shipments, providing technical laboratory services, and through these assisting plant breeders in the development of new cultivars, and conducting applied and basic research in matters related to grain and grain products. A portion of my time was spent learning more about their research projects and discussing their techniques.

While the Commission has its headquarters in Winnipeg and much of the laboratory work is conducted there, a two-day visit to a regional laboratory, a terminal elevator, and a malting plant (process elevator) in Thunder Bay allowed me to see some of the inspection, weighing, and railway car unloading operations. Many of the activities have been automated and computerized for efficiency.

Canadian International Grains Institute

Also located in the Grain Commission building in Winnipeg is the Canadian International Grains Institute. This is a non-profit corporation offering instruction in grain handling, transportation, marketing, and technology. Its programs are designed to support market development for Canada's grain and oilseeds industry. Its central location facilitates contacts with the Grain Commission, the Wheat Board, the Winnipeg Commodity Exchange, the Canada Grains Council, the Brewing and Malting Barley Research Institute, head offices of many of the grain handling companies, and others concerned with grain transportation and processing. Institute personnel work closely with these agencies as well as with other segments of government and the university community in developing specialist training courses. Courses are offered both within the Institute's own modern facilities and in foreign countries where there are existing or potential markets for Cana-

dian grains. A small-scale flour mill (375 kg/hr capacity), for example, is used to demonstrate the milling process using different kinds of wheat. An extensive pilot bakery can process the flour into the many types of bread products found around the world.

I was not able to participate in any of these courses, but with some planning one could profit by attendance and in a couple of weeks gain a good perspective of Canada's grain industry. I did, however, have useful discussions with Institute staff members and read many of the papers presented in their courses.

Of special interest is a book published by the Canadian International Grains Institute on *Grain and Oilseeds — Handling, Marketing, Processing.* The revised third edition became available in March, 1983. I commend the book to any readers interested in grain organizations in Canada and in the various aspects of grain movement and processing.

Agriculture Canada Seed Division

One of the many benefits arising from a seven-week period in May/June with the Seed Division in Ottawa was the opportunity to get a better picture of how the Division is organized and its responsibilities allocated. The Seed Division, which is part of the Plant Health and Plant Products Directorate, Food Production and Inspection Branch, Agriculture Canada, is responsible for ensuring the availability of adequate supplies of good quality seed for Canadian crop production, and for ensuring that such seed is accurately represented in the marketplace. It is the organization responsible for enforcing regulations under the Canada Seeds Act.

To carry out the Division's mandate the work is assigned to eight areas. The Seed Projects section compiles seed statistics for use by the seed industry and others, operates the Canadian Forage Seed Project for the multiplication of seed stocks of certain forage crop cultivars, cooperates with foreign seed certification or control agencies to facilitate seed imports and exports, and arranges for the testing in foreign countries of Canadian cultivars which may be useful in other parts of the world.

The Seed Standards section keeps abreast of desirable changes in regulations governing quality requirements for seed grades, weed seed classification, and related matters. Proposals for amendments from the seed trade industry, seed processors, seed growers, seed crop inspectors and others, or amendments necessitated by changes in government policy, are studied by this section with a view to possible implementation. On several occasions I was able to participate in discussions and provide input on the most recent proposals for amendments to the seed grade standards.

The Seed Inspection and Enforcement section coordinates seed and crop inspection programs, seed testing, and enforcement of the Seeds Act and Regulations. It is also responsible for the authorized establishment program whereby certain organizations may be given approval to tag Certified seed and to sell Certified seed in bulk lots.

The Variety Evaluation and Licensing section is responsible for deciding which cultivars should be approved for sale in Canada based on pre-licensing trials, which licenses should be revoked, publishing descriptions of new cultivars and amending the official lists. In searching some of the back files to obtain information on some older Canadian cultivars I learned that it has been policy to discard files on cultivars for which the license has been revoked, after a lapse of 10 years. Thus, I was unable to find information on certain cultivars that had been licensed many years ago but due to a lack of continuing commercial interest had been removed from the list some years later. A case in point was

Prof Profile

The highlights of a most successful sabbatical year for Dr. Harold R. Klinck of the Department of Plant Science must have been the recognition by his peers in the Order of Agronomes of Quebec when they awarded him with the title Commander of the Order of Agronomic Merit. The highest honour awarded by this professional body was made in June for Professor Klinck's contributions to cereal crop variety development where his three barley and four oat varieties have significantly increased agricultural production in Quebec. The article "Plant Breeding at Macdonald . . . An Historical Perspective" (Macdonald Journal, August 1983) describes some of Professor Klinck's research work. In this article we find out a little more about Professor Klinck as a student, a teacher, an administrator, and a family man. Our questions appear in italics.

The name Klinck is a familiar one in agricultural and teaching circles; was Dr. Leonard Klinck, the man who set up the Cereal Husbandry Department here at Macdonald, a relative?

Harold Klinck: Leonard Klinck was my uncle. He was at Macdonald until 1914, at which time he went to the University of British Columbia to set up the Faculty of Agriculture there. He became President in 1919 and held that position until his retirement in 1944. He was the first President of the Canadian Society of Technical Agriculturists which was the forerunner of the Agricultural Institute of Canada, and the AIC's Klinck Lecture series is named after him.

You received your BSA from the University of Toronto — are you a native of Ontario?

Harold Klinck: Yes, I was brought up on a farm about 20 miles north of Toronto and also worked on other farms in the area. Choosing agriculture as a career was not very difficult; after all, in those days what else was there for a country boy? We look on career opportunities quite differently now. I took my training at the Ontario Agricultural College, Guelph, which was affiliated with the University of Toronto at the time. Actually, I started off by taking the two-year Diploma course and then decided that I liked college and stuck with it, completing my BSA in 1950. The most difficult choice I had at that time was between specializing in field husbandry or agricultural engineering. A summer job in the field husbandry department con-

ne cultivar "Montcalm" timothy, eveloped at Macdonald College and sued license number 281 in 1937. In 952 the license was revoked and bout 10 years later the file was estroyed. The only information retain- d was the dates of licensing and de- censing, the cultivar name and cense number, and the name of the riginating institution. All other infor- ation has been lost. In my opinion, is is very unfortunate from an storical standpoint and I have urged e Division to re-think this policy with view to microfilming such informa- on for a permanent record.

Mention was made earlier of the oblems in the identification of wheat d that one solution might be a ange in the licensing procedures. me proposals have been made in at regard and a comprehensive study by the Division is now underway to examine and evaluate the whole cultivar licensing system in Canada with the idea of improving it.

A further section deals with Plant Breeders' Rights. A draft Bill and regulations were prepared by this group, following wide discussions with plant breeding and seed organizations, and submitted for consideration by the Canadian Parliament. Such Rights would provide Canadian plant breeders with some protection for their new cultivars and the opportunity to collect royalty payments from users of their cultivars. A cultivar protection system already exists in the United States and a number of European countries. Activity in this section will increase dramatically when the Bill becomes law.

The Seed Program and Management section provides clerical support for the other sections, issues reports, and maintains records.

The Seed Division has recently assumed responsibility for seed potato certification and to this end has developed a section on Technical Programs and one on Inspection and Regulations with respect to this crop. Many meetings with provincial and other groups concerned with seed potato production and marketing have been held to discuss proposals for new regulations and standards.

The Laboratory Services Division, which comes under the Food Inspection Directorate and is therefore administratively separate from the Seed Division, looks after cultivar verification work, among other things. Visiting this Division for a day I was able to tour the test plot areas as well as the laboratories where new techniques for cultivar identification are being developed. Despite the administrative inconvenience, the nature of the work involved demands that the two Divisions work closely together in all matters pertaining to seed and cultivar purity.

The Seed Division also works closely with the Canadian Seed Growers' Association, the agency responsible for pedigreeing Canadian crop seeds. I was fortunate in being able to spend two days at the Association office in July assisting with the evaluation of seed crop inspection reports.

Looking back on my experiences of the past year I consider my sabbatical leave program a very worth-while venture. The knowledge I acquired has given me a much better appreciation of the workings of the grain and seed industries and will be valuable to my teaching activities. In addition, I was able to make many useful contacts and to pass along information based on my experience as a plant breeder and a university professor. I would encourage other university sabbaticants to consider a similar kind of program. The full benefits of such a venture can only be realized by personal participation. Agricultural students, as well, should be encouraged to avail themselves of every opportunity to gain practical experience in their chosen field. Finally, agriculturally oriented industries, government agencies and the like should provide opportunities for participation by students — and professors — whenever possible.

uring Reunion '80 at the time of Macdonald's 75th Anniversary celebrations, Larry Johnston, B.Sc. gr.) '72, presented Professor Harold Klinck, Chairman of the 75th Anniversary Committee, with memento.

nced me that plants could be just as teresting as machines.

What brought you to Macdonald?

Harold Klinck: I started a program post graduate work at Guelph right ter I graduated but Professor Lods as looking for someone to do post raduate work with him. He was plan- ng to retire in a few years and anted someone to take over his work ith cereals. I jumped at this oppor- nity, of course, although in those ays going to Macdonald College and e Montreal area was like heading for Europe or perhaps even China now. It did seem a long way away, and it took some courage to pull up stakes but I have never regretted it.

When Professor Lods retired in 1954 I was appointed to the Agronomy Department staff and worked during the next year in my spare time to complete my Ph.D. thesis. I was awarded the Ph.D. in 1955.

You teach courses in cereal crops and seed technology and have directed the research of over 25 graduate students. Do you like teaching?

Harold Klinck: I like working with students whether undergraduate or graduate. There is some satisfaction in seeing those with whom one has had a rather close liaison over two or more years going on to greater successes. Two of my former graduate students are now authors of text books and one became a Director of an Agriculture Canada Research Station. Several who completed the M.Sc. under my direction have gone on and obtained their Ph.D. degrees elsewhere.

Committees form another part of College life, and I believe you have been on a number of them.

Harold Klinck: Yes, I've served as a member of numerous committees and have chaired several others. They have been good experience, and I enjoy my participation.

What off-campus organizations are you associated with?

Harold Klinck: Since about 1954 I have been very much involved with the Canadian Seed Growers' Association. I served a two-year term as President from 1967 to 1969 and was Chairman of their Plant Breeders Committee for several years after that. I was on the Advisory Committee of the Association of Official Seed Certifying Agencies and was also a member of some of their crop committees. I am still a member of the Canada Committees on Grain Breeding and Plant Gene Resources. I have been on committees of the AIC, served a term as President of the Canadian Society of Agronomy and also sat on the Board of Directors of the Association of Faculties of Agriculture in Canada for several years, serving as President during 1981-82. At the provincial level I have served on the Cereals Committee of the CPVQ (Plant Production Council) and have also been a member of the Quebec Seed Growers' Association.

In 1971 you were given an Honorary Life Membership in the Canadian Seed Growers' Association; in 1977 you were awarded an Honorary Life Membership in the Quebec Seed Growers' Association. These awards were followed in 1977 by your being made a Fellow of the Agricultural Institute of Canada. What were your thoughts on receiving the title of Commander of the Order of Agronomic Merit?

Harold Klinck: I was thrilled by being given this award. While I have been a member of the Order of Agronomes for a number of years, I have never been a very strong participant in its activities. I feel particularly honoured that the organization saw fit to award me because I don't really feel that I have done any more than was expected of me as a teacher and researcher in this province. I am also very pleased with the Honorary Life Memberships because of my association and interest in the Seed Growers' Associations over the years.

Turning to your personal life, Professor Klinck, did you marry the girl next door?

Harold Klinck: I didn't exactly marry the girl next door to where I was brought up, but I did marry the girl next door to the College at Guelph. I met Penny at one of the dances held at the Guelph YWCA every Saturday night. Fortunately, she lived at the top of the College hill, which was very convenient, and I didn't have to compete with other guys for a College girl from Mac Hall! Our 32 years of marriage have treated us very well.

Of our family of five, all have left home but the youngest. He is in second year chemistry at McGill. One is a graduate of Macdonald and is now completing his Master's degree in crop science at the University of Guelph. I expect he will go on to a Ph.D., following more or less the pathway of his father and two of his great uncles. The others are not involved in agriculture.

Some "Prof Profilers" that we have interviewed relax by sailing, singing, gardening, tinkering, taking photos. What about you?

Harold Klinck: I don't sail but I do sing. I joined the Union Church choir very soon after I came to Quebec in 1950 and it is one of the things I enjoy very much. I also like gardening, but if you ask me how I unwind, I think my favourite way is doing carpentry. I always manage to find things to rebuild or repair around the house.

You have been on sabbatical this year. Was this your first one?

Harold Klinck: No. I spent a very enjoyable year in 1975-76 at the Plant Breeding Station in Aberystwyth, Wales. This was a valuable experience, a good chance to see life on the other side of the ocean, and I must say it was one of the most enjoyable years that I and my family have spent.

Apart from chairing numerous committees, you seved as Acting Dean of the Faculty for an eight-month period. How do you feel about some of the changes at Mac over the past few years?

Harold Klinck: I am not unhappy with the direction the College has taken. We did go through some tough times but I feel we have come out all the stronger as a result. I was not particularly in favour of amalgamating the Horticulture, Agronomy, and Plant Pathology Departments into a Department of Plant Science, but I feel now with six or seven years experience behind us that it has worked out quite well. It does give us an opportunity for much closer relationships with the various disciplines within the Department.

My years at Mac have been good years; in fact, I would say great years! I have been very content here and have no regrets about staying in one place for 33 years. I suppose my involvement with external organizations has taken me away enough that I have been able to see other things, but it has always been nice to get back home. My family and I have been able to establish roots and make a lot of good friends here. We have found life interesting in Quebec because of its bilingual and bicultural aspects. We have always appreciated being close to Montreal with its many attractions while at the same time living in a semi-rural environment. We have had the best of both worlds.

Agriculture is one of our most important professions, whether in Quebec or elsewhere, and I have been greatly encouraged by the support received from the Quebec Department of Agriculture for my research over the years. I think agriculture in Quebec is rapidly improving and because of this I think there will be an important place for Macdonald College for many years to come. I am optimistic for both students and younger staff members who plan to make their careers in this province.

The Politics of World Food Supply

Dr. Donald McQueen Shaver

onald McQueen Shaver received Honorary Degree at Convocation Macdonald on June 3, 1983. e following are excepts from e Convocation Address given by . Shaver).

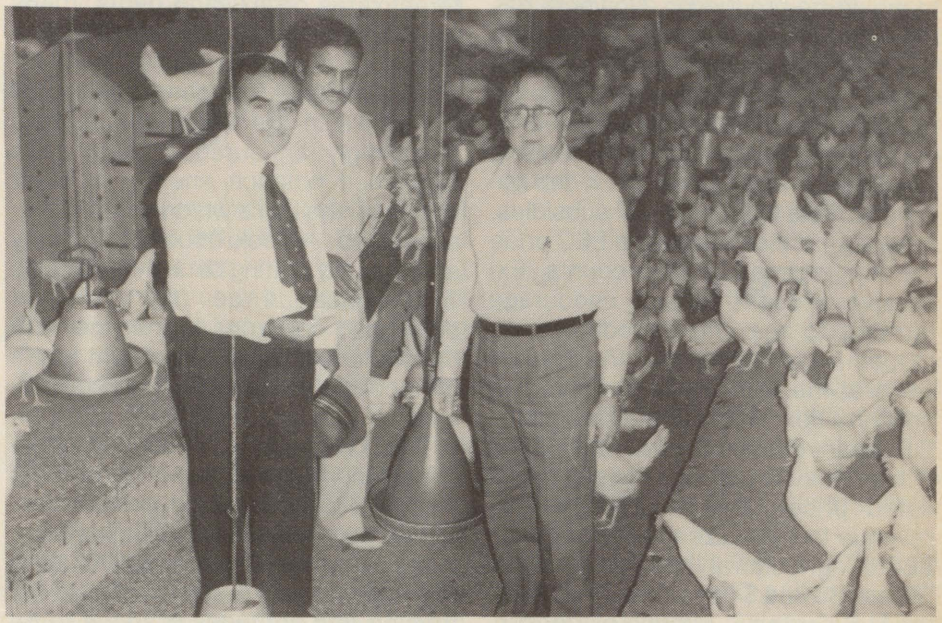
In this address I wish to discuss me aspects of the complex question "The politics of world food supply" ased on our own experiences in the ore than 90 countries in which we do siness) in the context of the kind of orld in which we live.

Last month on a trip to Europe I served different aspects of this estion. For years we and other imary breeders have tried unsucssfully to export our stocks to nland. I met with the Deputy Minister Agriculture to be told again that imorts would continue to be banned. He id, "You must look at the history of r country — a civil war and two mar wars fought here this century. egardless of political party we have olicy of self-sufficiency in food. This eans preserving the family farm with 0-500 hens, a half dozen cows, a w sheep and hogs. If we allow your brid hens to enter, we'll soon have 0-50 more eggs per layer and ecause of over-supply many farmers ill be forced out of layers. We can't this to ourselves."

I participated in a seminar in ungary. It alone of the Communist ates permits a motivation and reward stem in agriculture and is thus latively successful. After the seminar was interviewed by the editor of an conomic journal; an alert young man ith a recent PhD in journalism. His ain question to me centred around e function of the entrepreneur. Were ere still opportunities for the enepreneur in agriculture? Imagine this estion in a Communist country.

Finally, in Russia they admitted that eir large scale livestock units had en a mistake for reasons of both sease control and staff motivation. eir expansion over the next 10 years ill be in units employing 12-20 perons instead of the hundreds now gaged in operating some of the exting juggernauts.

The function of government is to enre adequate food production for its own people and, to some extent, seasonal items for those of certain other countries. This can be fostered by appropriate government support in the fields of economics, research development, and the limitation of government control as an interference.



Dr. Donald Shaver in one of the Shaver 288 Parent Breeder Houses in Pakistan. Behind him is Mr. Munir Rafiq, Production Manager, who trained in Cambridge. Left is Mr. Anwar Khan, Executive Director PIA-Shaver.

Cheap food exports give consumers in the recipient countries a lower price than they would have without the subsidized imports, but the country's own farmers receive a lower price for their products which have to compete against the imports, frequently at below the cost of production. These low prices force farmers in developing countries to shift their efforts to less productive activities, reducing the ability of farm families to buy manufactured goods and ultimately encouraging yet more migration off the farms and into the cities.

Only relatively well off countries like Japan and Taiwan ought to import large amounts of food. Most poor countries become poorer if they don't use their land and labour to feed themselves.

There is little doubt that the sciences can meet the world-wide challenges posed in food production. Two main factors run continuing and relentless interference: corruption and politics. The poorer the country, the greater the degree of absolute corruption and its accompanying misery for the masses.

To catalogue a list of mischievous and political acts perpetrated against orderly food production programs world-wide would be an almost endless task. Self-serving aberrations in this sphere verge on the immoral.

Although the Payment in Kind or PIK price rises for grains in the United Stated have eased the immediate threat to the income of American farmers, their opposition to the European Economic Community's (EEC) policy of paying out heavy subsidies to make high priced European farm products competitive on world markets has not been reduced. The recession, high interest rates, bumper crops world-wide, and the strength of the dollar also contributed to the income squeeze, but the EEC subsidies are different and are a factor that can be controlled.

The basic market problem is one of over-supply, though farmers prefer to see it as one of under-consumption. There is no doubt that the world's hungry would be happy to remove the excess from the market, if only they had the money to do so.

While the world recession has halted the slow growth in Third World

consumption of food, farmers in the developed countries have to a large extent been insulated from the effect of this on prices and have continued to maximize production. Nowhere has this been more evident than in the EEC. The EEC guarantees its growers prices which are 30 per cent above the U.S. level for wheat and 80 per cent higher for feed grains.The resulting surpluses are disposed of on the export markets with the aid of subsidies. American critics attack the EEC price support regimes on two counts. Excessive prices, they say, encourage farmers to maximize production irrespective of the state of the market, while at the same time discouraging consumption within the community. European consumers do not like it either because they have to pay the inflated prices and provide the tax revenue to subsidize the exports. The EEC's agricultural budget runs between $30 and $40 billion a year, while the U.S., which is a much bigger producer, allocates $18 billion.

Under the PIK program American farmers agreed to take land out of production in return for cash payments and commodities from government stocks almost equal to the yields they could have expected from the land. The present American government believes in a free market system, yet the PIK system is very close to being welfare. The purpose of the program makes infinite sense for no one, least of all the world's most efficient producers who go on producing at a loss — thus something must be done in the light of two record harvests, back to back. The contradiction comes when government on the one hand promotes more agricultural growth and with the other decides to embargo its largest customer. Add the effects of the recession and there is little means of expanding other markets.

We live in a world where nations are highly interdependent. More than ever before, the effects of policies pursued in one country rebound on others, and no country can be or should be free to pursue unchecked its own way regardless of the effect on neighbours. This lead not only to damage abroad but also compounds damage at home. The restrictive policies adopted by the major industrial nations in the wake of the OPEC-induced inflation sharply depressed both the prices and the quantities of their commodity imports, thereby catching much of the Third World in a pincer between falling export values and rising import costs. Combined with the impact of high interest rates on existing debts, many were confronted with the need to borrow more merely to service their existing payments. The consequence for the banks in the West, which were mistakingly encouraged to lend, is weakened balance sheets, as their assets — the loans which are being rescheduled — look doubtful. So they are naturally cutting back their lending. The consequence for the less developed countries is that they are unable to finance even present levels of imports. So they, too, cut back. As a result our exports fall.

The U.N. target of 0.7 per cent of national income in aid of the Third World must be rapidly achieved, and aid must be far more selective than it has been in the past. The most successful aid is soundly based on projects which fit the training and aptitudes of those to be aided. Smaller projects such as irrigation systems, roads or bridges, agricultural services, such as that offered by George Atkin through his overseas radio networks, must have priority over impressive airports and stadiums. Most important of all is imparting skills and an ability permanently to raise living standards.

The past half century has witnessed the destructive forces of East-West animosity and inevitable ideological confrontation. Our Company has tried over the years to bridge some of this gap through scientific exchanges and, while I am encouraged by the effect in two of the satellite countries, it is a fact that we have always given more than we have received. But having said this, I do not recommend that such exchanges should cease, only that we frequently assess, without emotion, exactly where all this is taking us. I am one who believes a dialogue of any kind is better than none at all but, ultimately, we must insist on a *quid pro quo* to demonstrate that these actions from our side aimed at a form of detente are not an utter absurdity.

There is an enormous thirst for agricultural knowledge in the Third World. African countries, in particular, send a steady flow of requests for technical literature. Our mailing list for China has 900 names. We wished to revise it and sent out a letter in Chinese asking if each recipient wanted to remain on the mailing list. In under six weeks, Canada Post notwithstanding, we had 700 replies and they still come in, daily.

Where does the new graduate fit in today's confused agriculture scene?

Businesses are successful because someone makes the sacrifices that others are unwilling to make. A son, who should have been in our business, said he would never join if it meant working as hard and as long as I had. When he did go into business for himself he was immediately confronted with the reality that to succeed in any type of business, he must indeed work as hard and as long as the parent!

Contributing an extra few minutes each day at the work place you will find to be rewarding and fulfilling. To paraphrase John Kennedy, "Ask not what you can extract or coerce from your employer, but what you can contribute to the common good."

Your degree is a measure of your ability to absorb knowledge, not to use it. Graduation means making a break from a sheltered life at College and assuming responsibility for oneself and perhaps a family. If you aspire to be a leader, cultivate the grace to assume responsibility for failure, whether you deserve it or not, and share credit for success with others, whether they deserve it or not.

If the role of the entrepreneur is obscured by society, the vacuum caused by this displaced activity will be filled by State-controlled companies and sprawling multinational corporations — both frequently the ultimate in bureaucratic inefficiencies and minimal competition. The road to reduced opportunity and Orwell becomes very short.

The entrepreneur, the scientist and the technical specialist are still capable of forging independent and powerful working partnerships. Some of the firmest friends that you will make through life are made in the late teens and 20s. Look around today, identify those you intend to keep in touch with. Don't be afraid to do a little dreaming, and a lot of thinking and planning. The challenges are vast but so are the opportunities for you. I urge you to get off the mark fast, rebound from every adversity. Soon you will find your confidence surging and your niche will be before you, your goals attainable.

Seeking Solutions

rofessor Calvin Chong of the epartment of Plant Science notes hat recent estimates by the Quebec ursery trade for sales of nursery tock and related services in Quebec ay be in the order of $50 million or ore. With improved methods of ssue culture and propagation of ursery stock, the dependence of uebec on imported nursery plants an be decreased.

The proposed research of Professor hong aims (a) to develop and refine e technology for tissue culture proagation of selected fruit species, and) to improve techniques for handling nd rooting ornamental plants from uttings for nursery production.

Since 80 per cent of plants sold in uebec are imported, aiming towards elf-sufficiency will require conderable research and development. any nursery plants are difficult to ropagate, and each species or ultivar may have different cultural and utritional requirements. This work ould make a significant contribution Quebec producers. In fact, a tissue ulture method developed in Professor hong's laboratory is already being usd by industry to supply Quebec rowers with Ottawa 3 rootstock, a fficult-to-produce apple rootstock at is in very high demand.

Professor Robert Kok of the epartment of Agricultural Engineerg hopes to provide Quebec food proessors with a computer based proess optimization package. This ackage, which he says will be inlligent and user-friendly, could gnificantly enhance the quality of anned food (including retort pouches, lk containers, etc.) and reduce cost nd energy use, thus providing enefits to both industry and conmers. Such a package would not reuire any computer expertise and ould make optimization techniques vailable to all processors, without ain, at low cost.

The impact of this research could inude higher quality canned foods havg greater retained nutrient levels and better taste, lower operating costs for processors, net reduction in energy use by the food industry at a low cost of implementation, since very little learning time will be involved for personnel.

Control of storage rot of carrot, pink rot of celery, and lettuce drop (all caused by *Sclerotinia* spp.) may be improved by the integration of biological control techniques with growth hormone and fungicide treatments, or so believes **Professor R. Reeleder,** Department of Plant Science.

Where pink rot of celery and lettuce drop is severe, even several spray applications of fungicides do not provide adequate control. Hyperparasites may play a role in reducing *Sclerotinia* spp. Fungicide applications with pesticide-resistant hyperparasites should result in better disease control. Better food with less clinical residue should result.

Growth hormones have been shown to increase storage life of vegetables, apparently by increasing resistance to pathogens. The application of microorganisms antagonistic to the fungus *Sclerotinia* should reduce the storage losses. Professor Reeleder believes that a combination of these two control measures will result in significant reductions in carrot storage losses (estimated currently at $534,000 per year).

Traditional tillage methods have been in use for many decades in eastern Canadian soils. The ratio of energy output to input for corn production has dropped from 3.7 in 1945 to 2.8 in 1970. Zero, minimum and/or reduced tillage methods can: 1) improve this trend, 2) improve soil structure status, and 3) reduce erosion, according to **Professor Vijaya Raghavan** of the Department of Agricultural Engineering.

In Quebec, however, there are many areas of heavy clay soils which are difficult to manage under minimum tillage. Farmers are often obliged to travel on their fields at inopportune times. The result is a hard compact soil which does not provide the environment necessary for good crop growth.

Professor Raghavan plans to determine the status of soils left under zero-till practices, their structure, water relations, crop growth, and disease/pest problems. The three years of study funded by Quebec should provide information for conservation tillage systems in clay soils of different soil structures.

Heavy veal production in Quebec remains full of pitfalls for the producer. One such pitfall, inefficient feeding programs, is being studied by **Professor L. Phillip** of the Department of Animal Science.

Professor Phillip feels that the addition of $NaHCO_3$ and anhydrous ammonia to high moisture ear corn should improve both the nutritive value and fibre digestibility of the high moisture corn. Anhydrous ammonia may be a cheaper source of non protein nitrogen than urea, and if more feed intake results from added $NaHCO_3$, the economics of heavy veal production should improve.

Garlic lovers (and/or people bothered by vampires) should appreciate the efforts of **Professor Jean Peterson,** Department of Plant Science, who is looking into virus-free producion of garlic. Virus infections are the limiting factor for vigorous growth of garlic, according to Professor Peterson. Viruses are continuously being carried by plants when they are propagated vegetatively (as with garlic, potatoes, strawberries, etc.). By using tissue culture techniques, virus indexing, and producing plants aseptically, virus-free plants may be produced. But to be absolutely sure, the virus in question must be purified, identified, and an antiserum produced. Professor Peterson plans to do all this and help produce better crops, as well as reduce possible infection by garlic of onions and leeks, two important Quebec crops.

Agricultural Engineering

A Decade of Service to the National Capital Commission

by Professor R.S. Broughton
Department of Agricultural Engineering

Greenbelt farmlands by the Rideau River.

Over the past decade we have made field investigations, prepared plans, and supervised construction for a wide range of land improvement work on the farmlands of the National Capital Commission.

The National Capital Commission, which was started by an Act of Parliament in 1958, has developed and maintained many facilities in the Urban Core, Gatineau Park, and the Greenbelt around Ottawa. The Commission looks after the grounds maintenance for the Parliament Buildings and other federal buildings in the national capital region. It operates the Gatineau Park and the Parkway along the Ottawa River as well as many miles of bicycle paths. The beautiful parks developed and maintained by the Commission help to make Ottawa-Hull one of the more attractive and pleasant capitals in the world.

The Greenbelt, which was established to provide a definite long-term green area between the urban core and the satellite urban areas within the national capital region, consists of about 50,000 acres including parks, forest areas, golf courses, National Capital Commission farmlands, Agriculture Canada Research Stations, and the Uplands Airport. The Director of the Greenbelt Division of the National Capital Commission is Mr. Sterling Knox, B.Sc. (Agr.) '64.

About 40 per cent of the farmers renting land from the National Capital Commission were owners of the land before it was purchased by the Commission. The newer farm lessees are people who have applied for rental land when it became available. One of the Commission's objectives is to manage, for their best use, the natural resources of the Greenbelt, including the 12,000 acres which are most suited for farming.

Subsurface Drainage

In late April 1973 we moved to a vigorous start by doing soil classification and soil permeability tests, topographic surveys, design calculations, and preparation of plans for one 240-acre area on which subsurface drains were to be installed in May before grain corn could be planted. Staff and student employees joined in this work. The work of the drainage contractor was supervised, drains were installed, and the corn was planted in the month of May. This crop was a resounding success. On some nearby National Capital Commission farmland without drainage improvement, it was not possible for the lessees to begin to prepare their land for planting until June 23, 1973. By that time it was too late to plant most crops.

In the remainder of 1973 we completed topographic surveys and soil permeability tests on 4,000 acres.

Early in 1974 we completed subsurface drainage plans for part of the 4,000 acres. We prepared the first set of comprehensive technical specifications for use with the calling of tenders for subsurface drainage installation work. These specifications provided for the use of clay tiles, corrugated plastic drain tubes, and the best thin fabric or knitted type of envelope materials then on the market for keeping sand from entering the drain pipes along with the drainage water. This was the first set of contract specifications which provided for grade control by either the range pole and cross arm grade stake method or the new laser grade control systems. Two contracts were let and the work of the contractors was supervised. Subsurface drains were successfully installed on about 1,000 acres that summer. During the part of 1974 when we were not supervising the installation of subsurface drains, we carried out soil permeability tests and topographic surveys on another 4,000 acres.

This work in 1973 and 1974 was the first production scale use in Ontario of the field tests for soil permeability by the auger hole method. The soil permeability and soil stratification data were used in calculations to determine the depths and spacings to be used for subsurface drains. These observations of the soils helped us to design drainage systems suited to the specific field situations. The result was the use of more drain pipes per acre in some fields and much less in other fields than would have occurred with the use of the current general farm drainage practice in eastern Ontario. Through the use of this planning method and competitive bids, we achieved savings averaging about $60/acre compared with current Ontario drainage prac-

ces. Field observations have shown iat these drainage systems perform- d very well from 1973 to 1982. We ave carried out field surveys, easurements of hydraulic conductivi- , and made drainage designs, plans, nd specifications for a total of 10,000 cres of National Capital Commission reenbelt farmlands.

Overall, there has been a remark- ble achievement by the fabricators nd installers of drainage materials ver this decade. Inflation in the verall Canadian economy has doubl- d the wages and prices for most ems since May 1973, but the costs of rainage installations have increased ery little.

enefits to Drainage Engineering echnology

In addition to the direct benefits to e National Capital Commission and e farmers leasing land from the Com- ission, this work has had some spin- f benefits in improving drainage chnology:

- We have shown the employees of several drainage contractors ways to improve their installation work.
- We have also learned from contractors details about their drainage machinery which has allowed us to make better plans and specifications resulting in improved installations;
- We have developed equipment and techniques for field and laboratory tests of soil permeability and drainable porosity;
- We have found practical ways of identifying compact subsoil layers which help us to decide whether deep tillage or other secondary drainage treatments may be necessary as part of the overall land improvement work;
- We have brought engineers and soil scientists from other parts of Canada and from other countries to see how the field measurements are made, to see how some of the drainage installations are made and supervised, and to see the results of drainage improvement work;
- In July 1976, we arranged a field trip for delegates of the American and Canadian Societies of Civil Agricultural Engineering Conference in Ottawa to see subsurface drainage installation with trenchers and drain laying ploughs, working through a crop of grain corn with relatively little crop damage. We also demonstrated some of the equipment we had developed for field measurements of hydraulic conductivity, drainable porosity, and water table position;
- f) Farmers who previously were afraid to make drainage installations through a standing crop in July and August have learned of the benefits in terms of better quality installation work in the hot dry weather compared to waiting until after the fall harvest and gambling that the conditions will be suitable for construction;
- g) We have provided apprenticeship type training for many senior students and new graduates of Agricultural Engineering, Soil Science, Wildlife, and Renewable Resources studies. These persons contributed their skills and

A hillside drainage problem has since been corrected with a subsurface drain.

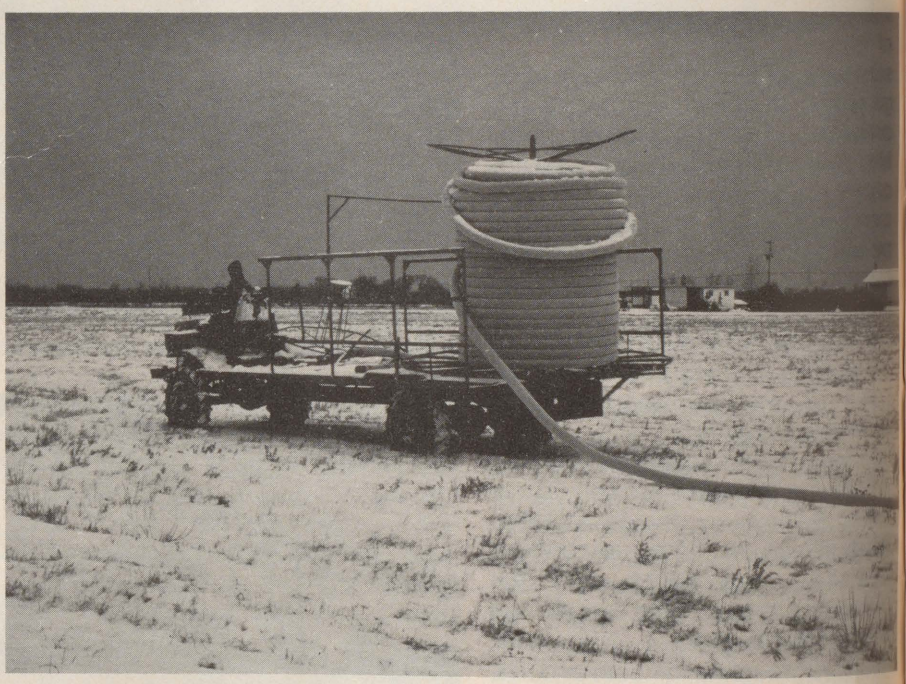
Preparing the reinforcing steel rods for an erosion control structure.

knowledge and youthful enthusiasm in a very productive way. A good number of the students who have worked on this project have gone on after graduation to practice land improvement engineering work. Some of them are working with consulting engineering firms, some have become drainage contractors, some are now working in drainage and land improvement work in every province in Canada, and some in other countries, including Trinidad, Jamaica, Pakistan, Tanzania, Sierra Leone, and Malaysia.

We have made detailed investigations of the few areas where drainage has not been adequate after the installation of subsurface drains. The total of such areas has been only about 200 acres out of the 8,000 acres where drains have been installed. In each of these areas we have identified particular soil problems, surface drainage problems, or drainage installation problems which were the causes of the difficulties. We have made use of the results and experience of these investigations and investigations on other jobs not only to recommend remedial measures but also to point out to consulting engineers, soil scientists, and drainage contractors at meetings in Ontario, Quebec, New Brunswick, Alberta, Indianapolis, Chicago, Nashville, Pakistan, and Egypt how soil factors can be taken into account in drainage system design and construction work.

With this work and concurrent research work sponsored by the Quebec Ministry of Agriculture, Agriculture Canada, National Science and Engineering Research Council, and industry groups we have kept up-to-date with methods of field and laboratory investigation for solving drainage and land improvement problems. We have provided recommendations for revisions to the Normes de Drainage for Quebec and other drainage publications.

Corn killed out by runoff water indicated the need for drainage improvements.



Stringing out of drainage tubing prior to installation on a December day.

Erosion Control Work

We have been conscious of the need to achieve agricultural improvements without causing environmental degradation. We have tried several methods of reducing erosion after the excavation of new waterways or the deepening of existing waterways. We have made use of sodding, placement of stone rip rap, gabion baskets, and of seeding, fertilizing and mulching immediately after ditch construction to reduce erosion and get new vegetation started as soon as possible.

We carried out a study of the erosion problems along the south bank of the Ottawa River from Green's Creek to Orleans in 1981. Some of the erosion control work was implemented in the summers of 1981, 1982, and 1983. Two large gullies were replaced by grassed waterways and a pipe spillway with an energy dissipating discharge apron. Some smaller gullies have been graded, seeded, and mulched to get the vegetation started. The drainage engineering class participated in this work on a field trip in May 1982.

Land Smoothing

There are many areas in the National Capital Commission Greenbelt farmlands where small sand dunes need to be spread or depressions filled before the fields can be farmed efficiently. We have assisted with arrangements for some of this work but much remains to be done.

We have found that fields should be cultivated for two or three years after subsurface drains are installed before land smoothing work is attempted. In this way the heavy sod gets broken up and the roots of brush and coarse weeds can decay before earth moving is undertaken. Then, when the land smoothing is done, there are no sods and roots to bunch up in front of the earth moving blades or to pile up in the depressions.

Brush Clearing

We have recommended and supervised brush chopping work on patches of land which have been cultivated sometime in the past but had been let go back to brush due to a need for drainage and land improvement work. Most of this land had been used for hay or pasture 15 to 40 years ago. After the cutting of hay and the pasturing of cattle ceased, thorn scrub and other low quality trees began to grow in the fields. This brush had to be cleared before subsurface drainage planning and construction could be carried out.

Farmstead Improvement Work

We have planned and supervised some work to improve surface and subsurface drainage around many farm buildings. Farm lanes have been improved and we have pioneered the use of geofabrics in the construction of farm roads over soft soil areas. A permeable geofabric is placed on top of the soft soil followed by a layer of gravel or crushed stone. The geofabric allows rain to pass through from the gravel to the subsoil but prevents the gravel from being pushed down into the soft soil when trucks, tractors, and other machines pass over. This reduces the depth of sand, gravel, and crushed stone needed for a roadbed and saves the cost of first placing a layer of sand then layers of gravel or crushed stone in the roadbed building process. We have organized the moving of soil obtained from digging ditches and used it to fill around farm buildings and improve surface drainage. We have also used surplus soil from ditches for filling in depressions in fields to improve the uniformity of those fields for crop production.

Some Results

1. The farmers who rent land from the National Capital Commission are producing higher yielding crops on land which has had drainage improvement work than they ever produced on that same land previously. The improvements are especially evident in the market garden vegetable crops and the corn, cereal, and alfalfa crops.
2. We have helped with the progress of land improvement technology in eastern Ontario.
   a) We have improved the techniques for measurements of hydraulic conductivity and drainable porosity of soils and of the use of information from these measurements in drainage planning.
   b) We have produced specifications for construction of subsurface drains, open ditches, and erosion control work.
   c) We have helped contractors improve their construction techniques and their field work efficiencies.
   d) We have communicated technological advances to contractors.

It is proper for a university group to be involved in this kind of land improvement work since some of the investigations, planning, and construction techniques are still in a research and development stage. We have been able to provide the necessary field investigation, laboratory testing, shop work, design office facilities and construction supervision to achieve proper treatment of the many aspects involved. The implementation of this development work has provided a good situation for extending the knowledge of young engineers and agrologists, and has brought to light field problems which required further study.

A SUMMER OF PRACTICAL EXPERIENCE

by Elizabeth Gauthier
2nd Year, Food Science

Being able to work in your field of study during the summer is a rare opportunity nowadays. Doing so in a dynamic cooperative milk industry that had just installed a new research laboratory was for me a unique occasion to learn as well as precious practical experience.

The chance was given to me this summer with the combined efforts of the Food and Allied Industries Division of the Montreal Israel Bond Society, Agropur, the Natural Science and Engineering Research Council (NSERC), and Macdonald College.

Agropur processes and distributes nearly one third of Quebec's milk production. A main branch of its activity consists of mass cheese production, fine cheeses as well as Cheddar. For this reason, most of the laboratory resources are currently applied to the study of microbial starters and rennet's effects on cheese at every step of its fabrication. The research project I was assigned to consisted mainly of testing cheese starter cultures in use in Agropur for proteolytic activity on casein.

In this first research experience I had a chance to design my own experiments, with the guiding help of Dr. Roger N. Giroux, director of the research laboratory, Pierre Audet, and Nelson Power, currently directing the research project on casein proteolysis.

I would like to thank all who made this summer so interesting and enjoyable.

Industrial-University Research Agreements

What is McGill's Position?

by Professor E.S. Idziak
Department of Microbiology

A Stanford graduate student contributing to a project leading to a patentable discovery was not named in the patent application by his professor who was funded by a company in which he had part interest.

A post-doctoral fellow in the middle of a research project was forced to start a new project when his professor told a company, with which he was affiliated, about her work and the company, with far more resources, solved the research problem before she did.

A new applicant for a faculty position had to choose between two companies which were headed by different senior members of Faculty before being granted the position.

A professor received a substantial grant for research from a company of which he was a director and a vice-president. The research would have direct commercial application for the company as well as an exclusive patent licence.

Professors were unable to answer questions at scientific meetings because the methods were proprietary.

The above are some of the situations encountered in several major universities in the United States that are involved in extensive industrial-university research agreements. If these are of no concern, then we need go no further. However, some academics feel that as the taxpayer funds basic research in universities then when a finding proves to be financially rewarding, the taxpayer should be recompensed, i.e., a faculty member and/or an affiliated corporation should not make money and profits out of what was essentially taxpayer-funded research.

To some extent this is achieved by the Alumni Research Foundation of the University of Wisconsin which markets faculty members' inventions and distributes the profits back to the university in support of basic research. Non-exclusivity licensing of patentable findings would also benefit the public more than an individual or a corporation.

No one would dispute that there have been benefits to the public and to the universities from industrial-university cooperative research programs. It is also certain that such cooperative efforts will intensify in Canada even though the goals of the two partners are substantially different, i.e.,

Industry — to make money, develop products, present data to interested investors;

University — to discover new knowledge and to convey that knowledge to the public at large.

In an attempt to come to terms under which industry and university can cooperate in university centred research without the university compromising its principles, the presidents from five leading United States universities and representatives from 11 major companies involved in biomedical research and development met in closed session in Pajaro Dunes, California, in 1982. At the conclusion of these meetings, Donald Kennedy, President of Stanford University, issued the following statement:

"Research agreements and other arrangements with industry must be so constructed as not to

1. promote secrecy that will harm the progress of science;
2. impair the educational experience of students and post-doctoral fellows;
3. diminish the role of the university as a credible and impartial source;
4. interfere with the choice by faculty members of the scientific questions they pursue, or
5. divert the energies of faculty members and the resources of the university from primary obligations to teaching and research."

McGill has existing guidelines on patent policies, consulting, conflicts of interest, etc., to ensure that the integrity of the University is maintained

IMPLICATIONS FOR MACDONALD COLLEGE

by Dr. A.F. MacKenzie
Associate Dean, Research

Many aspects of industry-university research may have an impact on Macdonald research efforts. For example, will patentable biological material be an area for future research potential, funded by industry but carried out at the University?

New cultivars, new microorganisms, new enzymes of benefit to agriculture may be discovered, but who will benefit — industry, university, scientist, or student?

Biological control techniques against weeds, insects, and plant diseases, as well as computer software for agriculture, are areas where industry and university may be able to cooperate to the benefit of the agricultural community.

Macdonald has always had a strong industry tie-in to research. But industry may be missing an opportunity by not funding at Macdonald more basic research that could lead to commercial products. The resulting cash flow from commercial exploitation of new products would not be unwelcome at the University level where budget cuts have become the rule, not the exception. Such welcome inputs must not, however, be at the expense of our responsibilities to our student programs.

The next few years should be interesting and perhaps trend-setting, provided we can come up with appropriate methods of cooperation.

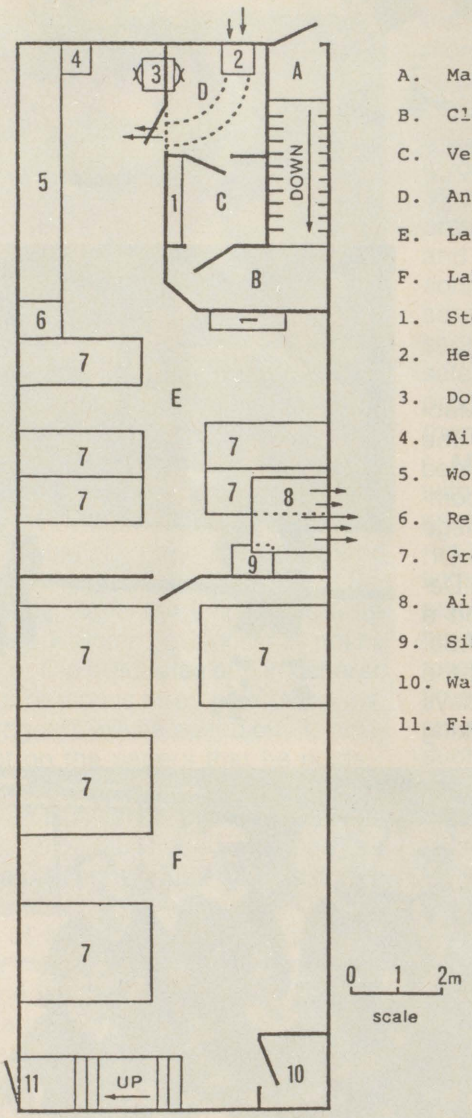
and that a fair return is received by the University for Faculty members' inventions. In addition, an Office of Industrial Research was established to assist staff in securing industrial and government research contracts. As long as the financial input for an individual contract was not too large, problems did not arise. However, as in recent months, when the monetary input by one company for a specific research proposal is several million dollars or when a Faculty member's invention has the potential of generating millions of dollars of profits, problems arise in developing a suitable contractural agreement in the first instance and in the development and commercialization of the invention in the second instance.

The Principal and the Executive Committee of the Faculty of Graduate Studies and Research, appreciating that the existing guidelines and statutes of the University relating to these issues were not adequate, have commissioned the *ad hoc* Committee on Academic Industrial Research Relationships (A.I.R.R.) to review McGill's policies and procedures which govern research relations between academics and outside corporate interests or government contractors. The Committee and its consultants are asked to make recommendations on any revisions required to the University regulations, guidelines, and current practices as these pertain to:

. patent, copyright, royalty, licensing arrangements;
. consultantship;
. conflict of interest or commitment;
. holding of equity positions or acting as an Executive Officer in companies related to research interests;
. confidentiality, secrecy, publication rights.

It is not the intent of the Committee to stifle in any way industrial-university cooperative ventures. It is accepted that these exchanges are extremely useful and should be encouraged. But these arrangements should proceed within certain rules which will permit an adequate return to the industry, University, and inventor without compromising the principles, integrity, and raison d'etre of the University.

Quarantine Laboratory for Biological Weed Control Research with Exotic Plant Pathogens



A. Main entrance
B. Cloak room
C. Vestibule
D. Anteroom
E. Laboratory (South Room)
F. Laboratory (North Room)
1. Storage
2. Heated air intake
3. Double-door autoclave
4. Air conditioner
5. Work bench
6. Refrigerator
7. Growth chamber
8. Air filter apparatus
9. Sink (sealed drain)
10. Washroom
11. Fire escape (normally sealed)

A unique research laboratory has been designed specifically for the investigation of imported plant pathogens as biocontrol agents of weeds. The facility was constructed in such a manner as to prevent the escape of imported plant pathogens of undetermined host range and pathogenicity during scientific study.

The major feature of the research facility is the air system. The entire laboratory is provided with negative atmospheric pressure and all air is exhausted through a HEPA (high efficiency particulate air) filter. The HEPA filter exhaust fan is connected to an emergency power generator to maintain the directed air flow through the biological filter during electrical power failures.

All discarded materials (soil, plants, wash water, used protective clothing, etc.) are passed through a double-doored autoclave and sterilized. Test plant species are inoculated with plant pathogens and host response studied in controlled environment cabinets within the laboratory. Entry into the laboratory is restricted and vigorously enforced. While in the laboratory, disposable coverall clothing is worn including head and foot coverings. The laboratory is vacuumed daily and the bench tops and other working areas are disinfected regularly (two to three times per day) with 70 per cent alcohol. At present, imported rust fungi (*Puccinia* species) are being investigated within the quarantine facility as potential biological control agents of weedy *Centaurea* and *Carduus* species of Canada and the United States.

Professor A.K. Watson,
Department of Plant Science

The photos on this page were taken at the 7th Annual Tournament held last April and included teams from Chipman Chemicals, Hoechst, Ralston Purina, Canada Department of Agriculture (Ottawa), and the Quebec Ministry of Agriculture (St. Hyacinthe).

Chipman Chemicals won the

ANNUAL FACE-OFF

photostory by Hazel M. Clarke

Over seven years ago one of Macdonald's star forwards on the staff/student hockey team decided that it was time to seek out new competition — to look beyond the College gates for teams to play against. Dr. Roger Buckland, Chairman of the Department of Animal Science, and a Mac graduate, B.Sc. (Agr.) '63, M.Sc. (Agr.) ' 65, remembered some of the hockey "greats" of his student days and knew of others that were working

Championship Game 2-0 over Hoechst, despite the excellent goaltending for that team by Dr. Garth Coffin, B.Sc. (Agr.) '62, Chairman of the Department of Agricultural Economics! Other Macdonald graduates on the visiting teams taking part in the tournament were: Bernie Beaulieu, John Blair, Allan Goldrosen, and Norm Renaud. A reception, dinner, and the presentation of trophies helped to round out a fun, if exhausting, day.

Macdonald team, back row, left to right, Jim Currie, Roger Buckland, Bruce Kennedy, Alvin Ross, Jim Straughton, Stu Willox, Bill Ellyett. Front row, left to right, Roger Titman, Bruce Downey, Bob Powell, Allan Watson, Marc Rolland, and David Bird.

in government or agribusiness offices within reasonable driving distance of Macdonald. Thus was born the Macdonald College Agricultural Hockey Tournament held once a year at the Glenfinnan Rink to promote both fun and liaison between players from Macdonald and players from government and industry.

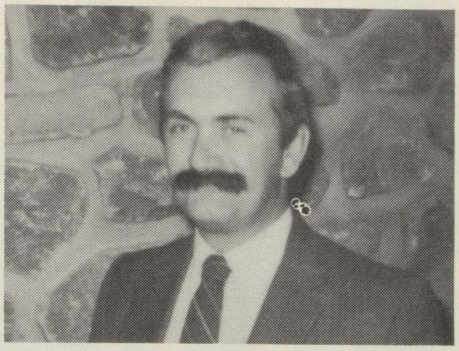
DIPLOMA

by Jim Currie
Assistant Director,
Farm Practice

Contrary to popular belief, being a Diploma graduate does not restrict a person to working on or owning a farm. Many graduates have taken a parallel course in industry and have been very successful at what they have chosen. Over the 75 years that we have been graduating Diploma students from this Program, there have been approximately 1,500 graduates. Of this number, probably half have worked in the agricultural industry for at least a few years. Many have stayed to make their careers with companies like Canada Packers, Pfizer Chemicals, Pioneer Grains, or International Harvester. We have graduates who are cattle buyers, seed salesmen, meat inspectors, and drug dealers (all legal, or course). Many careers have opened up recently as representatives of management advisory companies, such as Canfarm or our own D.H.A.S.

Why would Diploma graduates want to go into the other part of the industry? The answers to that question are numerous: better wages, more security, and shorter work days than on the farm. These are just a few. The most common, however, would be that they intended to save enough money to buy their own place. Many eventually do buy a place but find that they enjoy their chosen career so much, or the benefits of it so much, that they don't want to quit, so they become part-time farmers with full time jobs.

On the other hand, why would the other sections of the agricultural industry want Dips? Again, the reasons are numerous. According to Mike O'Reilly (who is Regional Manager, Atlantic Region for the by-products division of Miracle Feeds), Diploma graduates have many attributes that appeal to employers. They generally have a good technical training upon which a company can build with its own training program. They are usually open minded about technological advances in a company. They often have grown up in a farm environment,



so they can appreciate a farmer's situation and problems better than many of their B.Sc. counterparts. This allows them to communicate better with the farmers and be open and honest with them. Again, contrary to popular belief, they are not hired because they are cheaper than B.Sc. graduates. Generally, it is equal pay for equal work. Some positions may not be open for Dip graduates but, in general, once a person is hired by a company, his progress will be based on his ability, not on the papers that he holds.

Mike O'Reilly's own story is about as good an illustration of this as can be found. Mike was raised on a farm in Hudson. His father had worked on the farm and in the Plant Science Department at Macdonald College so, in a sense, was a part-time farmer. When it came time for Mike to decide what to do after high school, the choice was obvious: Macdonald College! But why the Dip Program? Because he wanted to get back to the farm as quickly as possible. Little did he know that it would be a long time before he would return, even on a part-time basis.

Upon graduation in 1971, he decided to accept a job with Ralston-Purina to get some money to buy the farm. Mike stayed with them for five years first as a buyer and distributor of local materials, then he worked with protein products. He valued the basic training he got with this company highly, but he also knew that he could not stay with them and still realize his dream.

There was more money to be had in sales, and Mike, therefore, moved to a new job as a technical sales representative for the Cyanamid Company. He stayed with them for one year, then moved to Miracle Feeds as a merchandizing manager.

This move got him back to working with the dairy industry in a more central location, closer to home. After 10 months in that position, he was offered, and accepted, his present position. He has been in this spot now for 5-1/2 years. His job is almost entirely involved in administration, marketing by-products from the Labatt's breweries in Montreal, St. John, N.B., and Halifax. Mike has become a personnel supervisor in charge of three salesmen and a three-person secretarial and clerical staff. His only sales work now is in developing new products and new areas, then turning them over to his sales staff.

Mike O'Reilly is extremely pleased with his staff, pointing out that they work well as a team. The operation is run almost as an independent business within the larger parent company. He points proudly to the fact that they have won the company's management award for being the best region three times in a row, based on the narrow spread between plans and actual productivity. This, in a region covering eastern Canada to Belleville, Ontario, and the Northeastern United States.

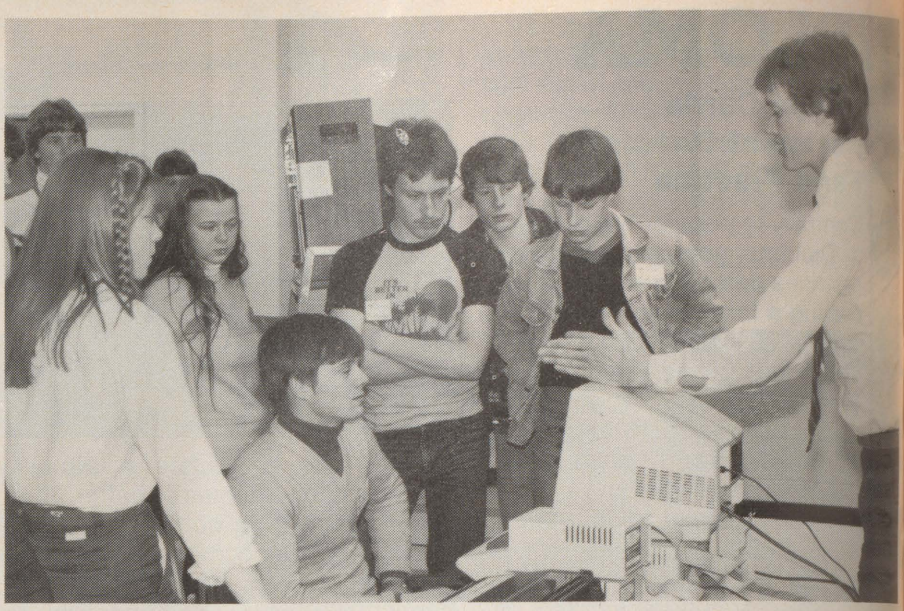
His philosophy in both his work and his private life is to set goals and work hard toward them. He feels that his future in the company may be limited only by his lack of business administration training. He has, however, started to concentrate more on his private life.

Mike bought the home farm from his father in 1972 and, in conjunction with other family members, has slowly built it up. The farm now consists of 250 arpents, of which 220 are clear with 150 of this tile drained. They have concentrated on increasing field size and productivity as well as increasing the herd size and quality. They now have 10 purebred Holsteins and 22 purebred Jerseys milking and a total of 62 head. They would like to increase the number of Holsteins and plan for an 18,000 pound herd average. Unfortunately, for the present, this is limited by quota prices. In the meantime, they sell hay from part of the farm.

For the time being Mike finds he can free enough time from his job to run the farm with the help of his family and some hired help. He looks at the farm work as a means of relaxing, or — a change is as good as a rest. He would like to be able to retire early, maybe within the next 15 years, or by the time

he is 45 years old. This would allow him to spend more time with his wife and two sons, giving them his feeling for farming and things agricultural. If his progress so far is any indication, Mike might just realize this dream. Meanwhile, he can be an inspiration for other Diploma graduates who also move into the other agricultural industry.

As a postscript to this article, the Diploma Program staff and students have just returned from a field trip to the International Plowing Match at Richmond, Ontario. While there, I was amazed at how many displays were manned by Macdonald graduates from both the B.Sc. and Diploma programs. I would estimate that one out of every three or four displays had a Macdonald graduate. This amount of representation is a good indicator for the College staff, and it serves to tell our students that there are jobs out there, and the Macdonald name is a definite introduction.



P.P.S. Thought you would be interested to learn that Neil Burns, seated in above photo, has just taken off for a six-month stint on a dairy farm in New Zealand. We wish him an enjoyable trip. The above photo was taken when about 25 young people from different areas of Quebec came to the Diploma Program "Farm Management Day." They heard discussions on farm record keeping, planning, and budgeting, and farm roll-overs. The afternoon session was on computer use on the farm with a presentation given by the Dundas Agri-Systems of Ashton, Ontario.

On July 13 and 14 the Conseil des production vegetales du Québec sponsored two days of weed control field trips to various farms and research centres, including Macdonald College, where the participants enjoyed a barbecue on the evening of the 13th. The following day Professor Alan K. Watson of the Department of Plant Science conducted some 50 to 60 people on a tour of the Lods Research Centre and the College Farm.

Agri-Winch Safety Note

The Agri-Winch provides an economical means of converting the farm tractor into an effective machine for wood harvesting. It is well suited to farm woodlot operations and permits skidding of even large material with a minimum of disturbance and effort.

Operators should be warned, however, that winching at right angles to the machine can result in tipping over the tractor and winch. Damage to the machinery, and possible injury to the operator, may occur.

Tractors used in forest operations should have roll bars but even so tip overs are to be avoided. Operators are strongly advised to take the care to position the tractor and winch so that there is very little side pull.

A Novel Method for the Treatment of Swine Manure

by Professor Pierre J. Jutras
Department of Agricultural Engineering

Present at the recent Farmers' Days were the research and development team, left to right, Frank Hornig, Sobimac Tec., Denise Prairie, 3rd year Agricultural Engineering student, Professor Pierre Jutras, and Louis Obidniak, Sobimac Tec.

A large number of swine producers in Quebec possess neither enough agricultural land nor sufficient storage capacity for the long winter season to satisfy the requirements of the Ministry of the Environment for the handling of manure. This situation has led to critical river pollution in areas of intensive pork production. There is also the everlasting problem of odours emanating from these enterprises.

The solution to these problems may be with a process that was perfected at Macdonald College in the Department of Agricultural Engineering with the cooperation of a small industrial firm, Sobimac Tec, Inc.

A testing program to evaluate the performance of liquid-solid separators for manure had been progressing since the beginning of the summer of 1983 with a grant from CRSAQ (Quebec Agricultural Research Council). These devices are gaining in popularity with dairy and swine producers since they facilitate the handling of the liquid portion of the manure by pumping. Under certain circumstances, the solids are used for refeeding by mixing with fresh feed. However, the liquid portion obtained from this separation is not suitable for rejection in rivers and steams as it contains too many nutrients, chemicals, and microorganisms.

It was decided to extend the separation process further to see if pure water could be extracted from the liquid portion of the manure for eventual pumping into the environment or for recycling through the animals as drinking water or for flushing gutters. A small laboratory model was constructed in time to be demonstrated to visitors at the Macdonald College Farmers' Days held on August 30 and 31. Based on early water quality test reports, the objectives of the project had been met.

This process could become attractive, particularly to swine producers, not only because of the environmental aspect, but also from the point of view of feed cost and animal health.

Reduction in Feed Cost

There are, in Quebec, swine producers who refeed manure after extracting the liquid portion with a commercial separator. They mix the solids in varying proportions with fresh feed with satisfactory results, particularly with dry sows. By further extraction of nutrients, the new method removes the finer particles that contain a higher protein level. About 80 per cent of the 5,000 or more Quebec swine producers have farrow to finish operations, according to 1982 MAPAQ statistics. Together they own about 340,000 sows which, in their dry state, could be fed at least 50 per cent of their ration as manure, effecting thus interesting savings.

Odour Control

Other than the improvement in the handling of manure, liquid-solid separation brings an added benefit, that of reducing odours. This has been observed even with existing commercial separators where only the coarser solid particles are removed.

Reduced Soil Compaction

The disposal of manure by land spreading is often performed at times of the year where soil moisture is at its highest. Repeated passes of heavy tractors and liquid manure tanks when the soil is in this condition can cause compaction and eventually reduced yields. The new process reduces the total weight of material to be spread by approximately 80 per cent or more, depending on whether or not refeeding of solids is carried out, thus reducing the compaction potential.

Animal Health

Refeeding of manure to sows in gestation has been reported by growers and researchers to increase immunity of piglets against certain diseases. Moreover, the new process of swine manure purification produces water free of minerals which, when recirculated through the piggery, can provide drinking water that is of higher quality than that which can be found in many pork producing areas of Quebec. A study carried out last summer by a team of veterinarians and agronomes and reported in the May 1983 issue of *Le Bulletin des Agriculteurs* (Cahier Porc) indicates that in certain areas mineral content is high enough to bring about stress and reproductive troubles in swine.

Reduction in Winter Storage Capacity

The Department of Agricultural Engineering at Macdonald College surveyed the liquid manure storage capacity on hog farms of the Yamaska River Valley a few years ago and found that producers had only about 50 per cent of the capacity recommended by the Ministry of the Environment for satisfactory winter time storage. This means that much of the manure ends

up in the River, as evidenced by the well-known pollution level of this River. As mentioned previously, a reduction in volume of 80 per cent with the utilization of the new process would eliminate this problem and reduce the cost of otherwise expensive storage structures.

Conclusions

The advantages of the new swine manure separation process described above can only be truly evaluated if and whenever farm size units are put into operation. Other advantages may show up as time progresses. Should government subsidies be provided to help farmers in the fight against pollution (as is done with municipal wastewater treatment plants), this new method of treatment may rapidly gain momentum in the improvement of the quality of the environment.

GOLD MEDAL WINNERS

The farm Valmont Drolet et Fils at St-Raymond de Portneuf was this year's recipient of the Quebec Ministry of Agriculture's Gold Medal, winning with a total of 908 points out of a possible 1,000. **FRANÇOIS DROLET,** a third year student in the General Agricultural Science program at Macdonald, is a son of Valmont and Cécile, the Gold Medal winners.

AGRONOMIC DISTINCTION MEDAL

This year, the Agronomic Distinction Medal presented by l'Ordre des agronomes du Québec went to a past professor of Animal Science at Macdonald, Mr. Orance Mainville who is currently co-owner of a 2,000 head beef cattle operation near Farnham, Quebec.

The award was a recognition of the leadership Mr. Mainville has demonstrated over the past 12 years in the field of beef cattle nutrition and management not only in Quebec but throughout Canada.

He has been an innovator and an entrepreneur who chose to blend theory with practice and he has succeeded. For this, l'Ordre des agronomes du Québec chose to honour him.

Pierre Jutras, left, and Marcel Belzile, Secretary of the Quebec Agricultural Research Council, enjoying a picnic lunch during the recent Farmers' Days. The Council is subsidizing this research project as well as others at Macdonald.

Officials and 4-H winners, back row, left to right, Steven Barker, Nfld., Raymond MacKenzie, P.E.I., Neil McCutcheon, Ont., Ken McEwen, co-ordinator, Ken Shaw, B.C. Front row, left to right, Jan McDonald, co-ordinator, Betsy Clarke, General Manager, Denise Bissonnette, Que., Colleen Munroe, Alta., Sharon Anderson, N.B., Leila Hiltz, N.S., Kim McKenzie, Man., and Janet Patterson, Sask.

4-H SCHOLARSHIP WINNER

Denise Bissonnette has been selected as the winner of the Canadian National Exhibition 4-H Scholarship for the province of Quebec.

Each year the CNE offers a $1,000 agricultural scholarship to an outstanding 4-H club member. The 10 provincial winners spend several days together in Toronto and are presented with their cheques at the Exhibition in August.

Coming from a Holstein dairy farm in St-Polycarpe, Denise has always been interested in agriculture. She is in her second year of degree studies in General Agriculture at Macdonald.

Denise was chosen from among the Quebec candidates on the basis of her participation and accomplishments in the Cercle des Jeunes Ruraux de Vaudreuil-Soulanges. Her main activity with her club is showing dairy calves, but she has also held the executive positions of secretary and treasurer, and organized several club activities.

THE MAPLE CINDERELLA SYNDROME

by Professor A.R.C. Jones
Woodland Resources
Department of Renewable Resources

Some current activities in the maple stands of Quebec are a good news-bad news story that have many maple producers anxious about the long-term future of an industry that adds between $30 to $40 million annually to their gross farm revenues.

The good news is that the great surplus of unsold syrup produced by the bumper crop of 1981 when Canadian syrup production reached 3,002,000 gallons (13,648 kl) has been reduced. This surplus made it difficult for producers to sell even top-quality syrup. Now only dark syrup remains in surplus in most marketing regions. A recent visit to the Maple Syrup Cooperative at Plessisville revealed that there was a growing demand for Canadian maple products in new market outlets in California and elsewhere outside the traditional maple-using regions of the United States. This is largely due to an innovative marketing program initiated by the Cooperative in these new regions. The Coop has 4,000 member suppliers in 1983. The surplus syrup situation meant that many producers did not tap their sugar groves in 1982, so that Quebec production in that year dropped almost in half to 1,610,000 gallons.

Some new problems that have developed since the use of tubing and vacuum came along are that producers tap earlier and start up their vacuum systems at the first possible moment. This means some cleaning fluid may be processed with the first syrup. If the system is cleaned in place and not taken down, it is vital not to collect the first sap flow in order to dispose of the accumulated cleaning fluid and residues that could remain in the lines. Failure to do this will result in off-flavour syrup from this first-run sap. The quintessential element in the maple industry is that we are selling flavour and that unique ingredient in the popularity of maple syrup must be protected at all costs.

A recent innovation that has helped producers process more sap more efficiently is called the reverse-osmosis (R.O.) process. This involves an investment of at least $15 to $20 thousand for a 2,000 to 3,000 tap operation and up to double that for larger sugar bushes. The process speeds the task of reducing sap to syrup and improves the quality of the product by removing the water from the sap without heat by pumping it through a semi-permeable membrane. This concentrated sap (10° Brix or more) is then processed in the normal way by boiling. Using R.O. means that syrup can be drawn off at up to three times the rate obtained with the conventional system and a better grade of syrup is produced. Another popular innovation in many sugar houses is the use of a sap heater located above the evaporator pan that makes use of exhaust steam given off by this pan to preheat the incoming sap before it actually reaches the rig. This means that a good deal of energy is saved by starting to boil with near-boiling sap as compared with the old method when the sap reached the rig ice-cold.

So far I've been talking about a few syrup marketing and sap processing developments, but the source of all the wealth and sweetness generated for this enterprise is that Cinderella of the maple industry — the sugar maple tree itself.

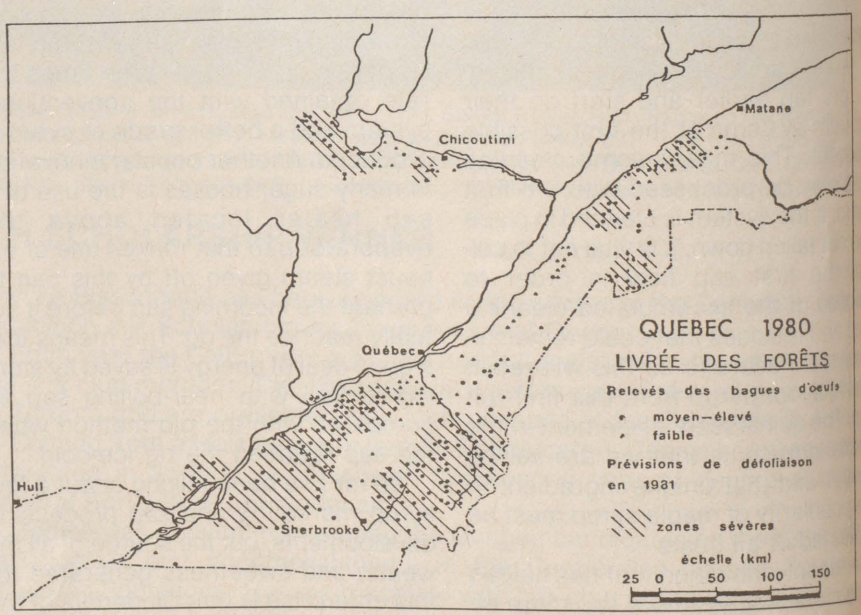
The Bad News — Maple Die Back and Mortality

Most producers are in their sugar bushes only when they are tapping, collecting sap, or cutting out non-maple species. The rest of the time, with few exceptions, the sugar bush is left to fend for itself without much attention to improving the spacing of producing trees, the removal of defective, diseased, or more shade tolerant species, or the favouring of sweet trees. In many cases the sugar place is also used as a low-forage pasture. Until 1982 the maple stands in Quebec had managed to survive this neglect and lack of protection and management pretty well.

The situation may be changing and serious concern is now being expressed for the long-term future of this valuable resource. In the fall of 1982 widespread drying out and mortality of sugar maple was observed in some sugar groves in southern Quebec. The phenomenon appears to be most heavily concentrated in the Beauce region although the neighbouring counties of Frontenac, Megantic, and Wolfe have also reported abnormal tree mortality. In this region maple has been a vital enterprise to many

farmers because of the marginal nature of the landscape for intensive forms of arable agriculture. The maple stands have been subjected to long-term exploitation for sap production — under vacuum in most cases — the widespread pasturing of livestock, and the systematic removal of non-maple species from the sugar bush. Sugar maple is also suspected of being sensitive to acid rain. These are frequent stresses for any vigorous, healthy maple stand, but in the case of the species in Beauce and neighbouring counties it is near the edge of its botanical limits, classed as the sugar maple-yellow birch association which is found only in the colder regions of the province. Since 1978 to 1982 sugar maple in this area has been subjected to a massive and sustained outbreak of the forest tent caterpillar which defoliates the aspen tree species and also attacks sugar maple once the primary host has been eaten. To start at the beginning of this developing catastrophe, the Centre des Recherches Forestières des Laurentides (CRFL), which conducts annual surveys of insect and disease problems in the province, reported that in 1978 there was a severe outbreak of tent caterpillar in southern Quebec and aspen, birch, and sugar maple were being attacked. That year several sugarbush owners in southwestern Quebec (Franklin area) sprayed their groves with *Bacillus thuringiensis* (B.t.) to avoid the defoliation that occurred in parts of the Huntingdon area in 1977. Many of these owners are also apple growers so they are well aware of the drastic action frequently needed to protect a sensitive resource from defoliating insects. In 1979 a light to severe defoliation was reported by CRFL in southern Quebec, and from egg mass counts forecasts for 1980 were that a marked increase in defoliation would occur in Frontenac and Beauce covering an area of 1,500 km^2 and that serious losses in certain sugar bushes of the region were expected. The outbreak did occur with CRFL reporting up to 75 per cent of sugar bushes defoliated in the Beauce. Furthermore, the length, severity, and extent of this outbreak was far above past experience with the expectation that 1981 would again see a continuation of the defoliation. The tattered sugar bushes of the region were exposed to a further hazard in the form of a June frost that severely damaged maple in early leaf above 500 metres in altitude in all the Appalachian regions. One hundred per cent of the trees and 75-100 per cent of the maple foliage was affected on a total area of 1,300 km^2 (500 square miles) between Lake Memphremagog and Montmagny. Severe maple damage to over 130,000 ha was reported. Killing of the new leaf at this stage is similar to a complete defoliation, and the tree must draw on its reserves to produce another set of leaves. In 1980 the new leaves that developed after this late spring frost were eaten by the forest tent caterpillar which reached epidemic proportions in southern Quebec, with defoliation frequency rising from six to 80 per cent for the total area of Quebec. In Beauce up to 75 per cent of sugar bushes were defoliated so that in this year the maple trees were subjected to two severe and widespread attacks and some mortality of trees must have commenced (see maps of outbreaks and forecasts for 1981). Fall forecasts for the Beauce, Frontenac, and Wolfe regions for 1981 estimated complete defoliation in those sugar bushes adjoining aspen stands. This forecast was confirmed in 1981 and 250,000 ha of sugar maple was attacked with Beauce, Megantic, and Frontenac having 125,000 ha of maple severely defoliated. Maple in Nicolet, Drummondville, and Sherbrooke to Lotbinière was also severely affected (CRFL 1981). Seven experimental sugar bushes were sprayed with B.t. by the Ministry of Energy and Resources (M.E.R.) with excellent results.

As if these hammer blows to the survival of the maple resource were not enough, 1981 also saw the arrival in southern Quebec of the Bruce spanworm, another defoliator with maple being the primary host. An unseasonal February thaw in 1981 devastated many apple orchards in the province and further provoked unusual stress on sugar and silver maple causing lesions to roots, branches, and trunks which can lead to the death of the tree (CRFL 1981). The species was by now severely debilitated by this succession of disasters; 1982 forecasts suggested the Beauce region would again be heavily attacked by the tent caterpillar. In their 1982 surveys CRFL reported in mid-July that damage to sugar maple in Beauce and neighbouring counties had ranged from light to severe, particularly in a band 10 to 20 km wide from Lac Megantic to St-Louis-de-Gonzague along the Quebec-Maine border. This is the first year that dieback of maple was reported by CRFL as a separate phenomenon from defoliation and considering the severity of the five-year outbreak, it is a wonder that any sugar maple survived at all. The CRFL (1982) report various reasons for the unusually high mortality of maple. Predisposing factors could be aging of stands, competition, poor drainage and fragile sites. Contributing factors such as disease and root-rot



1980 sample points for egg mass counts of the forest tent caterpillar. Hatched areas show where severe outbreaks were predicted for 1981. *(Courtesy CFRL, 1980.)*

and accidental attacks, or inciting short-term factors such as tent caterpillar, other insects, and the pronounced climatic extremes, including the late spring frost and the lack of snow during the 1980 and 1981 winters, have all contributed to seriously weakening the trees. Past experience of CRFL has shown that tent caterpillar alone is not usually the prime cause of the death of maples. The cumulative effect of all these coincidental events could be a major factor in the excessive mortality now being experienced. A group of experts began a study of the phenomenon in the late fall of 1982 and the work has been continued in 1983. An aerial survey of the Chaudière and Etchemin River watersheds showed maple mortality to be high at 10 to 15 per cent in a large number of sugar bushes and a ground survey has been conducted by the M.E.R. in the administration regions of Quebec, Eastern Townships, and Trois-Rivières. Forty to 50 study sites have been established to precisely map the extent of the damage, determine its cause (CRFL, 1983), and confirm the hypothesis that heavy defoliation was the prime cause of the extensive dying of trees.

In 1983 the tent caterpillar population finally crashed but the Bruce spanworm was abundant in the devastated region and surviving maple stands were again defoliated by as much as 0 per cent to continue the pressure on this hard-pressed species (CRFL, 1983).

The United States Experience

Several authorities have reported on the effects of insect attacks and other ecological factors on sugar maple mortality in the United States. MacAloney (1966) reports that "sugar maple (is) attacked by free feeders, skeletonizers, miners, rollers, and webworms (and that) complete defoliation for two or more years may kill the tree." Skilling (1964) "studying the effect of below normal precipitation and insect defoliation on the development of maple blight symptoms, found that two years of heavy mechanical defoliation caused severe tree mortality." Wiese and Benjamin (1964) report that heavy mortality of sugar maple of all sizes and ages in northern Wisconsin was due to a complex relationship of several insect outbreaks, root-rot, low

Maple dieback symptoms observed in a recently tapped sugarbush near St. Cecile, Frontenac County.

stand density, severe late spring frosts and a high proportion of sugar maple. Finally, Anderson (1983) reports that the great maple kill in Delaware County, New York, was caused primarily by forest tent caterpillars helped by gypsy moth and eastern tent caterpillars. Some maple stands can tolerate up to three years of defoliation with little loss and other stands are killed by one year of defoliation. High concentration of caterpillar populations seemed to be the determining factors as in the kill areas; it killed all trees, young and old alike. In aerial sprayed maple bushes, spraying when the caterpillars were three quarters of an inch long seemed to be most effective in reducing defoliation and saving the trees. In areas where 100 per cent of the leaves were saved by spraying the 1982 sap sugar content averaged 2.8 per cent. In non-sprayed areas sap sugar content averaged less than one per cent and many of the trees died. Anderson recommends that if your area is threatened by a forest tent caterpillar outbreak — don't wait! Spray the first year as you can lose your sapbush in one year's defoliation. A survey of Hancock township in Delaware County showed 26,000 acres of dead maple.

Who is Responsible?

Considering the extent and severity of the outbreak in southern Quebec, the importance of the resource and the accuracy of the outbreak forecasts for the following years, an appropriate question to ask is why no effort was made to spray the heavily infested areas to protect them from another disastrous defoliation. The Franklin producers and the M.E.R. had no hesitation in successfully protecting their sugar bushes by aerial spraying the year after the first outbreak. A concerted spray effort in the severely defoliated regions could have reduced the damage and most probably saved many Beauce sapbushes that are now being converted to fuelwood. Is the environmental lobby so powerful that the use of an effective biological control to protect an important resource outlawed or was the high cost of the operation a deterrent for a nearly bankrupt provincial government? Perhaps it's just the maple Cinderella syndrome again that no one really cares about it anyway!

It Was a Summer Affair!

by Jim Currie
Assistant Director, Farm Practice
Diploma in Agriculture Program

"Lois, telephone! It's for you!" Only a cattle exhibitor knows the meaning of that statement. But if you reach out and touch someone with that phone call, he won't appreciate it much. It's another way of saying that a cow just dumped and someone should clean it up before she lies in it and needs washing afterwards. It's bilingual too.

What else did I learn while travelling the fair circuit this summer? Well, if you fall asleep in the barn, you could end up sleeping in the back of a pick-up truck, or in various states of undress when you wake up. Fairs are great places to find out which farmers are practical jokers and which are not. It's one place to meet farmers in a relaxed, social atmosphere.

Fairs have a lot of different reasons for being. They are places of serious, yet friendly, competition. They are places to prove the quality of produce you own. They are places to get away from the regular workload and work hard at having fun. They are places to advertise — in our case, Macdonald College.

After only one year and only a dozen fairs, I can hardly call myself a veteran, but it sure gave me a different viewpoint of an institution I've known all my life — the county fair. That fun place where you go as a youth to eat hot dogs, make yourself sick on rides, and impress young ladies with your ability at the midway booths is a different world when you work in the barns with cattle. It is a place of long hours, quick friendships, and make-shift sleeping accommodations.

How can I describe the pleasures of going to bed at 3:00 a.m. on bales of straw while the neighbour is milking one teat of his cow? Or waking up at 5:00 a.m. when he milks another teat in an effort to have the udder balanced at show time. Or discovering that, somehow, a piece of straw worked its way into the sleeping bag and came to rest in my underwear. It is now my personal opinion that hay and straw quality tests should include a sub-section especially for material to be used at fairs. This category would include a rating of "firmness of bale," "conformation to human form," and a big section on "resistance to shedding chaff."

The "Lois" I first mentioned is Lois Fowler, a second year B.Sc. student. She and I participated in 12 different fairs this summer. Or one might be tempted to say, we had a fair, after a fair, after a fair, all summer long. All this with the help of other staff members, farm staff (especially Gordon Beaulieu, herdsman), and a number of bovine beauties who accompanied us as chaperones.

And . . .we got paid for it, too!!

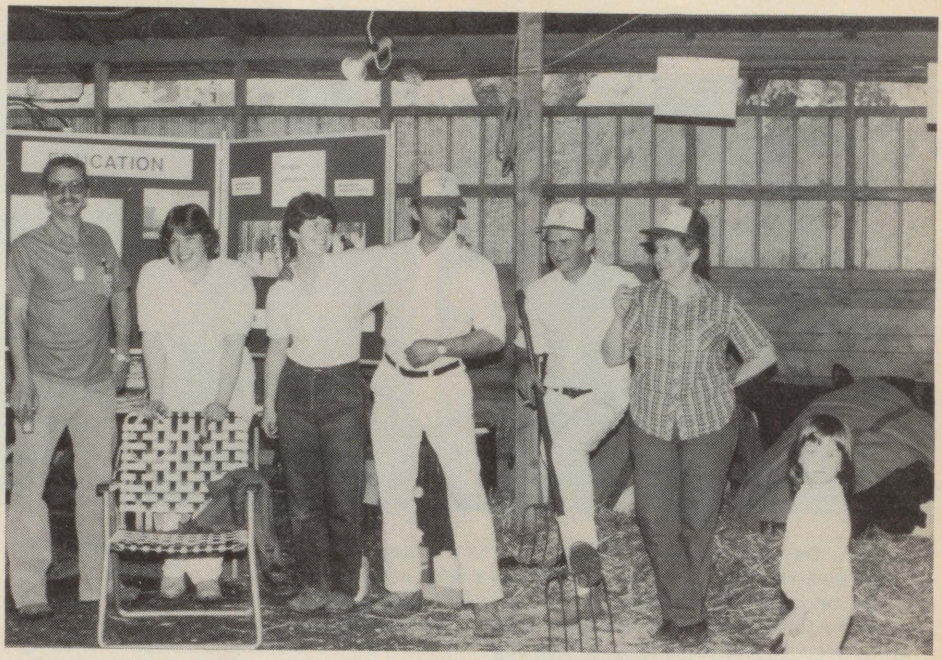
From Where I Sat

by Lois Fowler
Dip. '80, 2nd Year, B.Sc. (Agr.)

Virtually everyone has been to a county fair. You know the kind that I mean — where the red ribbon on the jar of green tomato pickles is as meaningful as the premier breeder banner waving above the champion Holstein herd. I thought these displays of country pride had gone the way of 30-horsepower tractors and eight-gallon milk cans, but I'm pleased to admit to hasty judgment.

The local fair is the all-important event of the summer (or fall, as the case may be). Not only is it an opportunity to display farm produce and see the latest in equipment and machinery, but it is also a well orchestrated social gathering. In a season when visiting is placed rather low on a farmer's list of priorities, well behind hay-making and silo-filling, time at the fair is traditionally spent leaning against the tire of a John Deere or sitting on Fred and Martha's show box catching up on the news.

That's where I came in. From where I sat, behind the display table at the Macdonald College exhibit, the future of the "farm fair" in on solid ground. Although we were relatively new on the show circuit, I was to find out as the summer wore on that Macdonald is part of that solid ground. From Ormstown to Bedford, from Brome to Richmond, we met Macdonald College graduates — teachers, farmers, homemakers, and agronomes from the Class of '27 right up to '83, all with a common link to Macdonald College. Our initial reason for being at these exhibitions was to promote the College; we found that the ground work was already done which made our work seem like no work at all. Everywhere we went we were greeted with warm smiles, friendly conversation, and recognition of an agricultural institution firmly entrenched in the Quebec community.



Enjoying their participation in the Ormstown Fair are, left to right, Jim Currie, Lois Fowler, Patti Ward, William Chabot, Gordon Beaulieu, Thérèse Beaulieu, and young Marianne Chabot.

Forage Conference

by Professor Bruce E. Coulman
Department of Plant Science

The Fifth Eastern Forage Improvement Conference was held at Macdonald College, July 6-8, 1983. This conference brings together research and extension workers who have interests in forage crop improvement. The conference is held once every two years alternating between locations in Canada and the United States. Most of the participants come from eastern Canada and the northeastern United States.

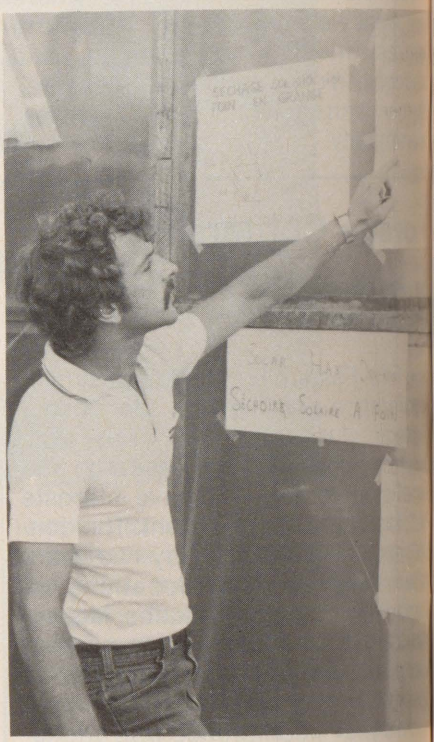
This year's conference was attended by approximately 60 people. The Conference was opened on Wednesday afternoon, July 6, with a welcoming address by Dean L.E. Lloyd. This was followed by a symposium entitled "Forage Legumes — Nitrogen Fixation." The symposium focused on three topics: 1) the improvement of the legume plant in nitrogen fixing ability; the improvement of Rhizobium bacteria in nitrogen fixing ability, and the contribution of forage legumes to soil nitrogen in short crop rotations. Thursday morning's session consisted of voluntary presentations mainly on the subject of forage legume breeding. Thursday afternoon began with a brief business meeting followed by a tour of the forage plots at the Lods Agronomy Research Centre. The traditional conference barbecue was held on Thursday evening at Tadja Hall. On Friday morning, the final session of the conference focused on forage management.

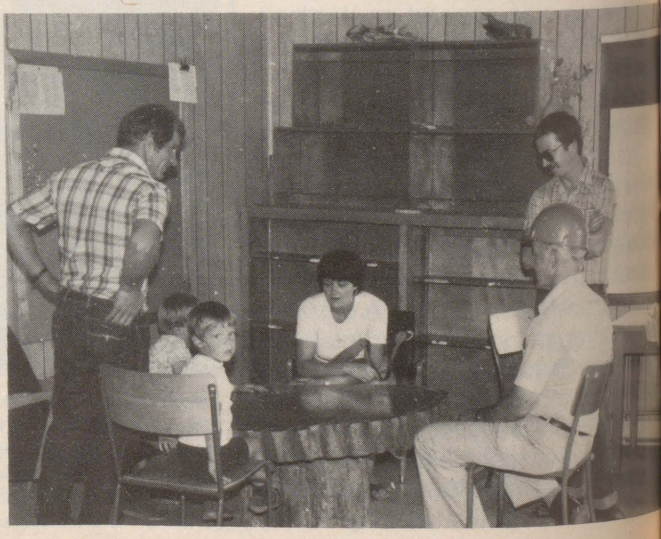
Most participants agreed that this year's conference was a success. The quality of the presentations was excellent and there was a great deal of discussion and exchange of ideas. In 1985 the Sixth Eastern Forage Conference will be held at Cornell University, Ithaca, New York.

Doug Griffith, right, Secretary Manager of the Quebec Young Farmers, is delighted with the fun the young QYFers are having while learning the skills of Skin the Snake. "By the end of two days they could do it with their eyes closed." This was one of the activities that took place during the 2nd Annual Junior Leadership Camp held at Macdonald last July. Six counsellors and 20 junior members participated in games, sports events, including swimming (the favourite!), cook-outs, and bonfires. As well, workshops and tours rounded out a most successful Leadership Camp.

FARMERS' DAYS

Farmers' Days took place on August 30 and 31 with displays and demonstrations at the Farm, Lods Research Centre, Arboretum, Horticultural fields and greenhouses, Brace Research, Raptor Centre, and main campus. The next Journal will feature an article on solar drying of hay, see photo at right of undergraduate student Benoit Ouelette at Brace. In this issue Professor Pierre Jutras describes his demonstration (see page 19). Many staff and students took part including, above, left to right, Henry Garino, Dean Lloyd, Dr. J. David, Raymond Martin, Rudi Dallenbach, and Jim Currie. In a future issue we will have an article on the grow-bag technique for tomatoes and cucumbers, shown here, above right, with postgraduate Adolpho Minero. Below, Dean Lloyd chatting with Wilfrid Holtman, who took time out from his own AI booth, to visit Jim Houston, right. Botton left, Mr. and Mrs. Sterling Parker, "Frankie" and André Lavigne, Education Officer for the Raptor Centre are about to begin their tour, and bottom right, Morgan Arboretum Curator Dan MacArthur discusses educational activities with a family touring the facilities.





P.S.

Of Special Significance

A note to express my appreciation for the August issue of the Journal which I received recently. As one approaches retirement age I am convinced that the appreciation for items of nostalgic significance increases in direct proportion. This particular issue was of special significance to me.

The report of the late W.G. MacDougall, an across-the-street neighbour in Lennoxville for many years and, through the short courses he initiated, very instrumental in enforcing my interests in agriculture; Norman Beach, of whom I had heard nothing for years and years, who motivated me in so many ways to pursue a career in agriculture, and with whom I had close contact during student summer work periods at the Carnation plant, Sherbrooke; Pierre Jutras, classmate at Macdonald; Helen Neilson, whom I knew as a dietitian in the Air Force during World War II and again at Macdonald; revered professors such as Melville DuPorte, E.A. Lods, L.C. Raymond, Earle W. Crampton, and so on. Also good to hear of Bill Shipley, just ahead of me in Agr. Economics, and another good buddy of students, Jim Houston. Of course, we often hear and occasionally meet Dean Lloyd another contemporary during the post-war years at Mac.

That one issue could be so personally memorable and also include some excellent and informative articles is a major achievement. Many thanks.

E.A. (Phil) Wright, B.Sc. (Agr.) '50
M.Sc., Ph.D. (Michigan State)
School of Agricultural Economics
and Extension Education
University of Guelph, Ont.

Welcome in Our Home

Congratulations! Your fine magazine is sure welcome in our home. I am pleased to note that many of the old traditions of the Clan from our days at the College are being revived. As a recipient of the Gold Executive Award in 1962 and an honorary appointee to the Gold Key Society in 1960, I am pleased that some of these traditions are being revived. Keep up the good work.

Grant A. Ketcheson, B.Sc. (Agr.) '62
Century Farms
Madoc, Ont.

Another Subscription!

Both my husband and I graduated from Macdonald in 1982 and would like to subscribe to the Journal. Thank you very much for sending us the August issue.

Holly Drake, B.Sc. (Agr. Eng.) '82
Saskatoon,Sask.

Good Work

I would like to thank you for the good work you are doing. I am a farmer in Trinidad and was pleased that Dr. Moxley from Macdonald was able to visit my farm on one of his visits. I was also able to recently visit your campus, farm, and DHAS Centre as well as the exhibitions at Bedford and Huntingdon. I was given a copy of the Journal at Macdonald, and I would like to subscribe.

Rooplal Roopchand,
Trinidad, W.I.

Interesting Publication

The Journal is an interesting publication which I enjoy and look forward to receiving.

Mrs. R. Smith,
Ste. Anne de Bellevue, Que.

Dr. DuPorte Remembered

After reading the August 1983 Journal today I wish to subscribe. I particularly enjoyed the article on Dr. DuPorte whom I remember with great interest and respect. He was one of those College professors one could never forget.

Jean McC Reeves, B.H.S. '25
Burlington, Ont.

A Wider Audience

Congratulations on the new format. I have been a subscriber to the Journal for a number of years and while I enjoyed the "old" Journal, I believe the new format will appeal to a wider audience. The August issue was of particular interest to me because it contained information and pictures about both staff and students who were at Mac during my four years.

Donald A. Adamson, B.Sc. (Agr.) '37
Beaconsfield, Que.

Convinced!

I enjoyed the August issue so much you convinced me for two years (subscription).

Tom MacIntyre, B.Sc. (Agr.) '39,
M.Sc. (Agr.) '41
Amherst, N.S.

A Pleasure to Read

The new format of the Journal is excellent and a pleasure to read. Congratulations.

Stanley J . Reid, B.Sc. (Agr.) '60
Huntingdon, Que.

Both Mac Grads

My wife and I are both Mac grads and would like to subscribe to the Journal.

Mr. & Mrs. Robert Suitor,
Lennoxville, Que.

A Gift Subscription

The new Macdonald Journal is very interesting. I wish you continued success, I wish to renew my subscription and also order a gift subscription.

Mrs. R. McNicol,
Ormstown, Que.

Memories

I really enjoyed the latest edition of the Journal. Brought back memories. Keep up the good work.

Ken W. Burke, B.Sc. (Agr.) '55
St. Catharines, Ont.

Of Interest

I am particularly pleased to read the research notes and articles as well as the Newsmakers.

Liang-chern Lu, M.Sc. '65
Taiwan

Take four gallons of chopped tomato vines . . .

by Betty Burdett
Department of Plant Science

The directions said to cover four gallons of chopped tomato vines with cold water, add the prepared wool, and simmer for two hours or until the desired colour was obtained. The "fragrance" coming from the big blue enamelled pot on my kitchen stove was overpowering and throat-catching. The two little boys from next door who were watching the procedures with great interest decided the time had come to leave, my two little dogs rose from their slumbers on the kitchen mat, shook their heads, and left the room, looking over their shoulders in cool disdain. My husband walked through the room quickly, shaking his head admonishingly. The Dickensian aromas permeated the kitchen, and after two hours I lifted the mass of wool with a wooden spoon to find it the same colour as the tomato plants. The wool was duly rinsed and carefully laid out on old copper screens to dry in a shady corner of the verandah. When dry, the wool was carded, spun, and knitted into a sweater, and seven years later it is still the same soft green colour of tomato plants.

That dyeing experience was the first of many; it renewed my awareness of our beautiful outdoor world and enabled me to meet many fascinating people interested in wool: from the tiny Scot who had a sheep farm not many miles from me to the lady who started a weavers' guild in southern Australia.

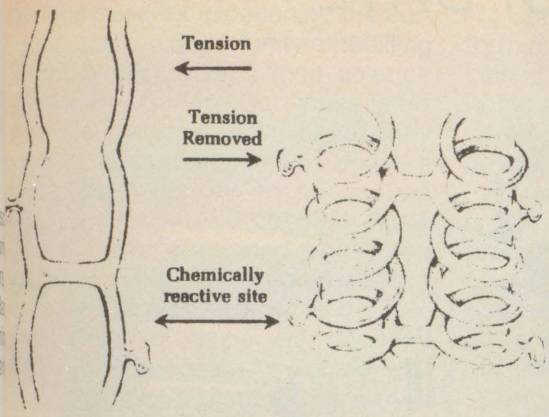
All these experiences came about with the gift of a spinning wheel from my husband one Christmas, after a chance remark that pure wool for knitting was hard to find and that it would be fun to know how to spin my own. Under the Christmas tree that year was a big flat box containing a spinning wheel kit. It took the men in the family two hours to put it together and the females in the familly two weeks to learn the basics of spinning. The procedure is akin to rubbing one's tummy and tapping one's head at the same time; if the rhythm is lost, the end of the wool wraps around the bobbin never to be found again! With the help of a book from the local library and much patience, the art of spinning was achieved. The supply of "tops" as wool commercially prepared for spinning is known, was soon used up. Where did one find sheep on the Island of Montreal? It so happened that this quest coincided with the annual sheep shearing at the College Farm, and a friendly voice assured me that a five-pound fleece was available and would be delivered to my office in a week's time. It was! A big bundle almost too big for my arms to encompass was left on the floor in my office. We opened it up on the verandah at home and the size was overwhelming. What did one do with a fleece as big as a desk top, that stayed together lifted and, although very clean, obviously needed some attention before it could be spun? Back to the library and a helpful book started us in the right direction.

To be a little technical, wet wool must not be subjected to extreme changes in temperature and must not be lifted or handled unduly. The following illustrations show how scales cover each staple (strand), and explain how the scales can be easily damaged by changes in temperature and how lifting and squeezing can cause the fibres to mat together. It was, therefore, with some trepidation that the fleece was lowered into the washing machine filled with water at 120°F and a cup of laundry detergent and left to soak for half an hour. The water has to be hot to melt the lanolin. This procedure was repeated twice, once with detergent and once with clear water. **Only** the filling and spinning cycles were used. The wool was carefully lifted out of the machine and placed on copper screens to dry in a shady corner of the verandah. It spun beautifully and was knitted into white sweaters for members of the family. Envisioning my family looking like a sports team, it was obvious that colour was needed. How? An interested friend told of an article in a horticulture magazine that described the art of dyeing wool using only natural sources such as flowers, leaves, bark, seeds, roots, etc. Back to the library and the first experiment was the aforementioned one using tomato vines.

These dye sources need help to bond to the wool, and to do this we use materials known as mordants, a Latin word (mordere — to bite). Briefly, the ions of the chemicals bond to the fibres; the color ions in the dye bath bond to the chemical ions on the fibres. These bring out the colours in the bath, help to make them fast, and change colours. The ones on our kitchen shelves are used the most: alum and cream of tartar, salt and baking soda, vinegar, liquid ammonia. Purchased ones are ferrous sulphate, chrome, copper sulphate, and tin and must be handled with great care and avoided if possible. A handful of copper nails can be substituted for the copper sulphate. I only use tin when using cochineal, dried tiny insects that live on cactus plants in California and make a bright red dye as well as pinks and magenta. One ounce will dye six pounds of wool.

We have used sunflower seeds (green), sumac heads (pinky beige), tansy plants (acid green), buckthorn berries (avocado green), walnut and butternut hulls (tobacco browns). An evergreen-to-be-remembered Thanksgiving Day walk led us to an elderberry bush dripping with fruit. These berries, mashed and covered with water, simmered slowly and, with the help of mordants, provided about 10 plummy colours and dyed enough wool to make four sweaters which when worn always bring back the happy memories of a family get-together.

A favourite dye source is the flower, *Coreopsis* spp. By chance we happened on a neglected meadow filled with the rich orange flowers, and a slightly pungent fragrance filled the air along with the hum of insects. The blossoms were pulled off and filling a big grocery bag did not leave any impression on the flowers re-

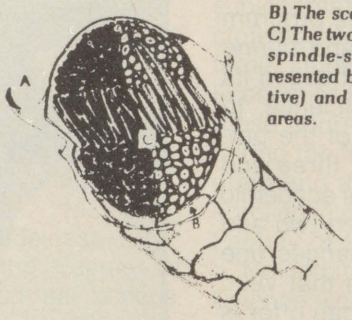


Schematic representation of protein chains of wool. The chemically reactive sites firmly hold dye molecules, attract water molecules, etc.

The spiral twist of the two core sections as it is related to the natural crimp of the wool fibre (the more reactive section forms the outside portion of the crimp blend).

DIAGRAM OF THE WOOL FIBRE SHOWING:

A) The outer, water-repelling sheath
B) The scale-cell layer
C) The two sections of the core of spindle-shaped cells as represented by the light (less reactive) and dark (more reactive) areas.



aining. This was during a summer oliday at a beach, and the water to ash the wool was heated over a bone on the sand. Seven-year old twins sked to help with the dyeing, and we romised to call them after supper at night. They came, but asked me wait for their mother, who asked e to wait for her mother. We had ree generations helping, and I rvently hoped it would work. The reopsis is one of the strongest dye urces, and the procedure is to drop e flower heads on the wool just overed with water; as the heat omes up, the colour comes out and ays. The wool, when rinsed, remain- d the gorgeous vibrating orange that e found in the meadow, and the range sweaters worn on the coldest ays bring back the laughter of the vins, the delight in finding an aban- oned meadow alive with colour, and e hum of bees. Looking back on is, all of the dyeing experiences ave been connected with delightful dventures with family and friends in ur outdoor world.

Friends have asked how to begin is craft. Where does one buy eece? You will probably be as surised as I was to learn that there is ot to be a flock of sheep not many iles from your home. Fleece are adily available. Cost? At the cost of re wool yarn nowadays, four large ome-spun sweaters would pay for e cost of a spinning wheel. A wool arder would cost about the same but ould be shared by a group. Time? We can always find the time for the things we want to do. How? There are many good books available in our libraries and book stores, and there is always some kind soul who will help one over the bumps. Natural dyeing and spinning are crafts that are ages-old. They are most satisfying, combining artistic expression, nature appreciation, and warmth on even our coldest winter days.

References

Nature's colors. Ida Grae. MacMillan Publishing Co., Inc. 1974. New York.

Vegetable dyeing. Alma Lesch. Watson-Guptill Publications. 1970. New York.

The story of wool. The Wool Bureau of Canada Limited. Toronto.

REPORT FROM THE REGISTRAR

It is with a light heart that I leap into print with this year's enrolment report. While the overall Faculty totals are up only two per cent over a year ago, the first year degree programs are all up a very encouraging 18 per cent. This first year increase is due in large measure to the help of Academic Advisers and Departmental Chairmen who wrote letters of welcome to incoming students.

The second and third year numbers are slightly below last year's totals, but this was expected in view of the lower first year totals last year. We look forward to this problem being remedied next year as a result of the substantial increases in first year.

The recession has hit the Diploma Program. The reduced numbers (76) are due, I believe, to lower incomes on farms and the students who come from the rural parts of the province staying home to help in the family business. This, in effect, saves in two areas, the cost of living at Macdonald and the cost of extra help on the farm. I am quite confident that the current trend will turn around as the economy turns around.

In the area of postgraduate students we have had a very gratifying increase over last year.

All in all, I am encouraged by the enrolment trends this year. We had hoped that the overall Faculty increase would be higher but if the demographic indicators mean anything, the five year averages should be very healthy.

(Stephen Olive)

FOOD SCIENCE UPDATE

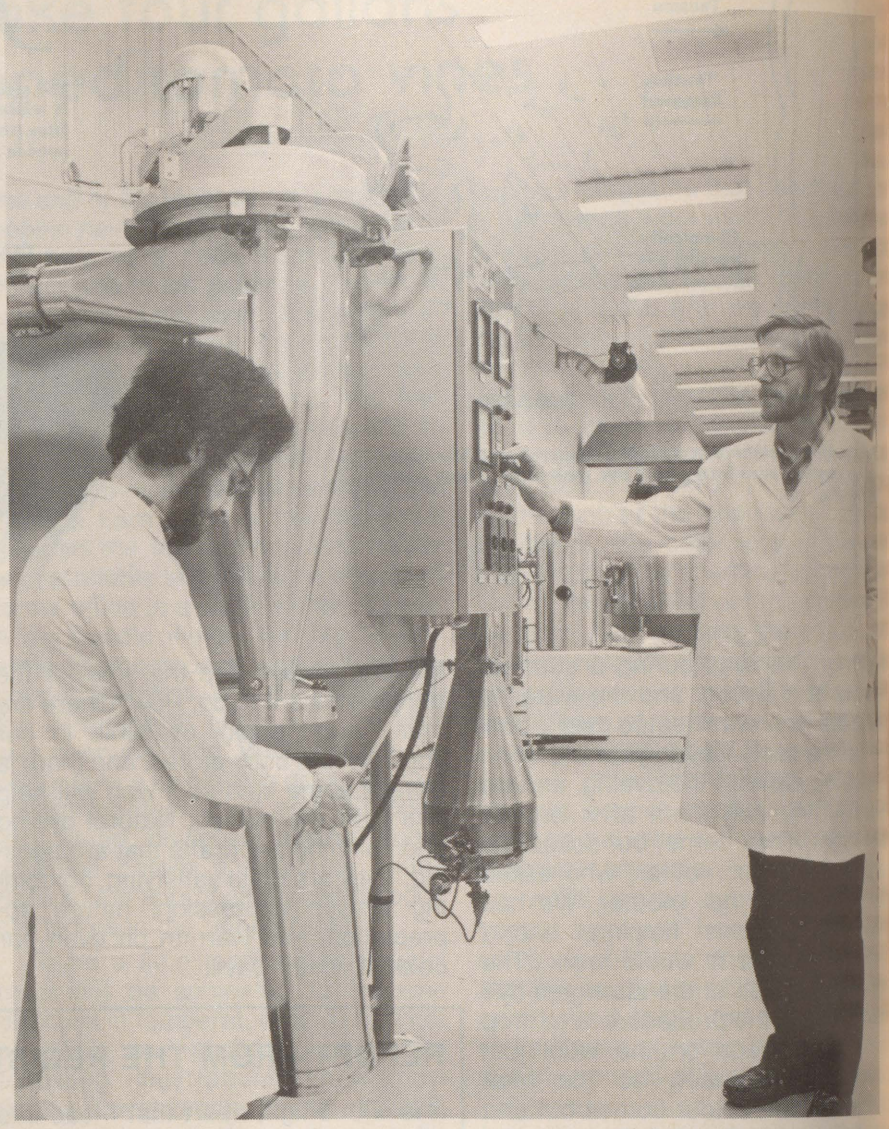
by Dr. Shirley M. Weber
Director
School of Food Science

Updating is such an important part of life today that it seems only fair that B.H.S., B.Sc. (H.Ec), and B.Sc. (F.Sc) graduates should be "au courant" with what is happening in their School today.

The history of the degree program stretches over 65 years and during that time the School has changed its name from Household Science to Food Science, the length of the program has varied between three and five years and the number of academic majors has ranged between two and six. To detail all these changes one needs an historian and, in that vein, perhaps the first update I can offer is that Emeritus Professor Helen Neilson is writing a history of our School. When Professor Neilson is not attending to her new home in Hudson or off on some professional mission, she can be found in her office on the second floor of Harrison House busily going through documents and "applying pen to paper."

In recent years Harrison House has become very important in the life of the School because it is a focal point for the Dietetics major. Since 1979 it has provided offices, conference rooms, and a Nutrition Education Resource Centre for the new integrated dietetics program. Graduates from Macdonald, along with dietetics students from Laval and the University of Montreal, no longer must seek internships in hospitals across Canada. The internship or professional practice, as it is called, is now integrated with the academic courses, and when students graduate they have met all the requirements to become a professional dietitian.

Quebec is unique among the Canadian provinces with respect to this type of curriculum. Ninety-four students have graduated in the integrated program, and they can be recognized "on duty" by the distinctive Macdonald pin which they wear. The Dietetics major with its range of professional opportunities has always attracted the greatest number of students in the School and still continues to do so. One can't leave a discussion of the Dietetics major without noting that Professor Florence Farmer, who has been associated with the nutrition group in both Animal Science and Food Science for 30 years, retired August 31, 1983. Dr. Farmer's many contributions to Macdonald were recognized by the students at a reception in March, by the College at the annual retirement party in May, and by the staff at a luncheon in August. Dr. Farmer has established a fund to be used for yearly recognition of superior teaching performance by a staff member at Macdonald College. Contributions to the fund may be sent to the College.



Professor Edward Idziak, right, and Jeffrey Mark Farber from Microbiology, in the Pilot Plant which has helped increase contract work with industry. Since the photo was taken Jeffrey Farber has received his Ph.D. — last June — and is with the Health Protection Branch, Ottawa.

The Food Administration major has been a program in the School for more than 15 years. The program was originally developed in response to industry and student requests for an alternative to the Dietetics major as an academic foundation for those planning careers in Food Service, but not necessarily in the Dietetics area. Graduates have found employment in a variety of food service industry areas, primarily in supervisory and junior management in production and service type organizations, in catering companies, airline feeding, fast food operations, and hotels.

The number of students in the Food Science academic program has grown very quickly since its inception in 1973 and it is now the second largest major in the School. Its development was aided by our move to the Macdonald-Stewart Building in 1978 where excellent laboratory facilities had been constructed. These facilities, along with those in the new Pilot Plant, pro-

ided the base for broadening the curiculum and the opportunity of fulfilling ur mission by adding food science taff to the School. As these staff nembers became established, they cquired research monies which were sed to purchase new equipment and o fund graduate students. Three tudents have graduated from Food cience with the M.Sc. degree and five nore are in various stages of the proram. Contract work with industry hich has involved the use of the Pilot lant or the sensory evaluation aboratory in the School (see August 983 Macdonald Journal) has added to ur liaisons with industry and given the pportunity for students to see the aplication of many of the principles earned in their courses. In the past, ery few young women had elected ood Science as their major, but today ney are the dominant number in the ndergraduate program both here and t other Canadian Universities. At the ame time, young men are enrolling in ur Dietetics, Nutrition, and Consumer ervices majors, although this transfer f numbers is far from reaching quilibrium!

The Nutrition major was introduced nto the curricula of the School in 1972 nd since that time has consistently atracted a small group of students. It is nother one of the majors in the chool which has developed by drawing upon already existing courses to form a program. The major offers excellent preparation for graduate work in the nutritional sciences as well as careers as a nutrition specialist in government or industrial laboratories.

The program in Consumer Services is a relatively new major and represents the increasing focus on the consumer's role in the marketplace. Courses which provide this focus include "Personal and Family Finance," "Problems in Family Finance," and "Consumer in the Marketplace." Students who elect the Business Orientation within the major are also required to take electives from such courses as "Marketing Management," "Consumer Behaviour," "Marketing and Society," and "Business Law" which are given in the Faculty of Management on the Montreal campus. Most programs in Consumer Studies in Canada are located in Colleges of Home Economics or similar institutions, but at McGill the location of this program in our School offers an opportunity to link consumer services to the food industry. The majority of our graduates are working in food-related positions either with the federal government or in the private sector, including one graduate who has opened a bulk food sales operation in the Eastern Townships. Another area of concentration in the major is family resource management and graduates look to banks, and trust and insurance companies for employment.

The School is still very much involved in the preparation of home economics teachers although the responsibilities for the program were transferred to the Faculty of Education in 1966 with the establishment of the B.Ed. (H.Ec.) degree. Our involvement has been in offering courses in the subject matter areas: foods, nutrition, clothing, textiles, and consumer and family studies to students in the Home Economics Education major. They take these courses at Macdonald College during the first two years of their program and then spend their final year enrolled in professionsl subjects in the Faculty of Education.

No updating on the School of Food Science would be complete without a mention of the General Office of the School and one of its happy and helpful employees, Betty Crevier. Mrs. Crevier is now living in Ghana near the Upper Volta where her husband Stanley is working on an engineering project for the Canadian International Development Agency (CIDA). We have enjoyed her letters very much and it seems that she has traded the care of a host of students and staff for the care of neighbours, stewards, gardeners, watchmen, 15 chickens, four guinea fowl, three goats, and one kitten.

At the Canadian Home Economics Association's Annual Conference a traditional Alumni Breakfast was held on July 31, 1983, at the Delta Brunswick Inn in Saint John, N.B., with alumni from the Macdonald and downtown McGill campuses gathered for a breakfast sponsored by Kellogg Salada Inc. Standing from left to right: Marilyn Minnes, '57, Margaret Wallace, '72 (President of CHEA), Elizabeth Wilson, '55, Stella Ahukanna, '85, Emily Reid, '60, Annette Van Vliet, '82, Anne Sawyer, '80, Joan Watt, '58, Betty Stafford Smith, '82, Leticia Rodrigues, '83, M. Elizabeth Jennaway-Eaman, '72. Seated from left to right, Susan Lawrence, '57, Janet Dryden, '70, Karen Kennedy, '77, Caroline Grierson, '61, Sylvia Saunders, '47, Jean McHarg, '60, Margaret Weeks, '72. Missing when photo was taken: Jean Gass, '48, Anne Christie, '72.

FUN FACT FABLE FICTION

by Ralph H. Estey
Emeritus Professor
Department
of Plant science

An International Language

In ancient times many nations had their own form of musical notation, but thanks to Guido d'Arezzo, a monk who lived in Italy in the eleventh century, an internationally accepted system came into use. The first six notes of Guido's scale, ut, re, mi, fa, sol, and la, were taken from the initial syllables of the first six lines of a Latin hymn to St. John the Baptist. The addition of si and the replacement of ut by do came about somewhat later. A musician of any nation or linguistic group can now read or play any composition from any part of the world.

Men to Burn

A woman dressed in widow's black and travelling with a spinster was crying and explaining that she had just cremated her third husband. Snapped the spinster, "The world is unjust. I've never had even one husband, while you've had men to burn."

No Poetry

No long days with bright sunlight
No warmth, no cheer, no ease
No bugs around the lamps at night
No leaves, no birds, no bees
No garden fire, no glowing ember
No-vember!

(No admitted author, with apologies to Thomas Hood 1799-1845)

Canadian Coin Facts

In 1861 the province of New Brunswick issued copper one-cent and half-cent coins, and followed in 1862-64 with five, 10, and 20 cent pieces. Nova Scotia also issued its own one-cent and half-cent copper coins in 1861. Ten years later Prince Edward Island issued its distinctive Three Cent, which was the first coin in British North America to have the Royal Titles in English.

Until quite recently, the motto *Dei Gratia* (by the grace of God), appeared on most coins of the Commonwealth. In 1911 a Canadian coin omitted these words and has since been referred to as the Godless cent.

When India became independent it was necessary to omit the *ET IND. IMP* (and Emperor of India) from newly minted Canadian coins. There was a pressing need for new coins in the early part of 1948 so the Royal Canadian Mint continued to strike coins dated 1947, with the outmoded title, well into 1948. To differentiate these from the regular coins a tiny maple leaf was placed after the 1947 date. More than 43 million "maple leaf" cents were struck in 1948.

The motto "We win when we work willingly" appears, in Morse code, around the border of the Canadian 1943 five-cent piece.

A Canadian silver 20-cent piece or "fifth" was issued for one year only, 1858. Newfoundland fifths were issued intermittently from 1865 until 1900. The first Canadian "quarter" was issued in 1870.

One of the rarest of Canadian coins and, therefore, one of the most valuable for collectors, is the 1921 50-cent piece.

The first Canadian silver dollar issued for circulation was struck in 1935 to commemorate the 25th anniversary of the accession of King George V.

Well Informed

You can easily identify well-informed men. Their views are the same as yours.

Sex

Sex is one of the most discussed topics of our time. Our grandparents pretended it didn't exist. Some moderns like to pretend that nothing else exists.

Word Processors

Word processors are not new. They include clerks, typists, teachers, lawyers, administrators, publishers, writers, and media personnel, to mention only a few of the many varieties. More Canadians are engaged in some aspect of word processing than in the production of food, and their numbers are increasing rapidly.

Delayed Action

There was a young woman named Bloom
Who went to a lesbian's room
They argued all night
About who had the right
To do what, with which, and to whom.

Rarely Fatal

Love is like the mumps, both are worse when they come late in life.

Hebrew Poverb

What you can't acquire, don't desire.

A Transplanting Success Story

In spite of the fact that there was not the slightest evidence that goat glands, or the glands of any other animal could be successfully transplanted into a man, "Doctor" John R. Brinkley made a fortune by performing this transplant operation on thousands of gullible men. He had a clinic in Milford, Kansas, during the 1920s and charged from $750 to $1,500, depending largely on the age of the goat from which he was presumed to have obtained the gland. A very young goat gland transplanted into an old man was guaranteed to increase the potency of the man, according to Brinkley's radio advertising. Eventually the license of his radio station was cancelled, so he bought a more powerful one in Mexico and continued to extole the benefits of his gland transplant operation.

Brinkley ran for Governor of Kansas and was only narrowly defeated. Even though he wasn't a candidate in adjacent Oklahoma, he got thousands of write-in votes in that state.

There is a Brinkley Memorial Church in Milford, with the inscription, "Erected to God and His Son Jesus, in appreciation of the many blessings conferred upon me, J.R. Brinkley." Among the many blessings were a private aeroplane, several yachts, and a number of expensive automobiles.

"Let me disclose the gifts reserved for age"

"The Department of Agricultural Chemistry and Physics is blessed with good fortune in that its grand old men, some not-quite-so-old, are within comfortable distance of Macdonald College." These are the thoughts of Dr. Peter Schuepp, Chairman of the Department. "That we can drop in for discussion and advice I find encouraging; it gives a certain strength." Bruce Baker, who retired from teaching in 1982, is still active in research at Macdonald, Phoebus Anastassiadis drops into the Department several times a week, participating in its affair and polishing up his publications, Emeritus Professor Bill Rowles seldom misses a social occasion, and Emeritus Professor R. Haddon Common, though slowed somewhat by failing health, is readily available for advice and consultation.

Long noted for their hospitality, Dr. and Mrs. Common shared a few hours with Peter Schuepp recently. They chatted and reminisced and what better way to reflect upon the past, ever mindful of the present, than by turning the pages of a favourite photo album. Other albums may have been started years earlier in Larne, Northern Ireland, where Professor R. Haddon Common was born some 75 years ago, and still others may be looked at later; for this brief moment we will concentratre on one.

A photo taken at the 1951 Annual Assembly showing Jim Ritchie, President of the Students' Council, "Billy" Brittain, Dean of the Faculty of Agriculture, and F. Cyril James, Principal of McGill, reminded Dr. Common that it was in 1947 that Cyril James, on a trip to London, hired him to teach at Macdonald. At that time Haddon Common was a scientific officer for the Ministry of Agriculture for Northern Ireland as well as a lecturer at the Queen's University of Belfast where he had received his B. Sc., B. Agr., and M. Agr. degrees. He had also worked for a B. Sc., Ph. D., and D. Sc. as an external student of the University of London.

"Cyril James told me to get across as fast as I could. I had to finish up my business in Belfast and then it was quite a chore getting passage over for the family. I remember that as there

Dr. and Mrs. R. Haddon Common sharing a few memories of Macdonald.

weren't too many people with large families, Dean Brittain was able to reserve a large house for us. We arrived on September 24th — I was completely unprepared and for a while it was catch as catch can.

"I was overworked my first two years here. I had never taught a class with more than 10 people in it, and the first class I walked into had 175 students; they were even sitting on the steps of the lecture theatre. Most of the students were veterans, and I remember how motivated they were.

"Back to Cyril James for a moment. James was an orator, a gifted speaker and for a time he used to come out once a week to give a lecture to the School for Teachers and everyone went, including the agriculture students."

"In streets I never thought
I should revisit"

"You ask if I reminisce. Of course I do, to the point of boredom. Looking at this series of skiing photos taken at Mont Tremblant's Sissy Schuss — Helen Maconochie, Helen Neilson, Jim Cooper, Pat Ellis, a student my first year here, and Ian Kerr — these remind me of my most memorable single experience, which took place in your native Switzerland. This was back in '38 when I climbed the Wendenstock with Fritz Immer . . . it was a wicked little mountain but a more than exhilerating experience. That was one of my last climbs before the War. Renate stayed at Melchsee-Frutt while we made the climb and when she was looking through the telescope someone said, 'Have a good look. It may be the last opportunity for you to see him.' "

"The conscious impotence of
rage at human folly"

A photo looking over his back garden to the old original high school, to the relatively new Highway 2 & 20, and beyond to the playing fields and the old Agronomy Building (now the Raymond Building) in the distance tugs at Haddon Common's memories

(Continued on Page 38)

MACDONALD — THE PLACE TO BE IN '83!

It was predicted that this would be a busy Reunion at Macdonald; however, few of the Branch executive or members of the Reunion Committee could have anticipated the surprising response. On the eve of Reunion there were several major gatherings of the Clan in locations on the West Island and in Tadja Hall. The Reunion Committee which was ready to begin registration promptly at 8:30 a.m. on Saturday morning, arrived to find Steve Casselman waiting to put in his order for 20 more Reunion tickets for members of his class. Happily everyone was easily accommodated, but that was an indication of things to come. As Reunion Chairman Steve Olive reported, "we planned for 130 for lunch and we ended up with seating adjustments up to the last minute for 156. Then we scrambled to get ready for the 190 we had planned for the dinner-dance and ended up pushing our caterers to 216." Several committee members, including Branch President Peter Knox, reported that the 30 stand-bys who could not be accommodated at the dinner made their own parties and, we hope, enjoyed dinner in local restaurants before coming back to join the dance program.

In spite of the very busy schedule, Peter Knox was able to arrange for John Abbott CEGEP to fly the Macdonald flag from what used to be the Main Building of Macdonald College.

This was an added touch for all the graduates who were relaxing on the terrace before the annual Macdonald luncheon. Perhaps the best element of the weekend was the weather. Everyone wanted to accept responsibility for the weather; few were willing to explain the fact that the luncheon, dinner-dance, and other events were sold out!

Seminars

Dr. Shirley Weber gave a most informative seminar on the evolution of the School of Food Science and on how Macdonald has responded to the changing times to become a world leader in this area of teaching and research.

Garth Coffin gave a seminar on agricultural economics and described today's trend in mobilizing all possible planning resources to solve problems in specific areas of agriculture.

Dr. Eugene Donefer, who has recently returned from China, gave a slide presentation to illustrate a seminar on the increasing involvement of Macdonald in other countries of the world.

The weather was absolutely marvelous and members of the Class of '43 took time for photos and renewing friendships.

Highlights of Luncheon

The Macdonald Branch Annual General Meeting, an integral part of the Reunion Luncheon, was convened by Honorary Secretary Jean McHarg. Reports were made by the Branch members, after which the President Peter Knox listed some of the major achievements of the Branch during the past years.

The Luncheon proved as popular as always and attracted more than 150 graduates, including spouses and friends. Dr. Lew Lloyd addressed a full house and outlined the difficulties faced by Macdonald College, and many other universities, in a time of increasing enrolment combined with decreasing funds and a reduction in staff.

Throughout its history McGill has always been assisted by private funds and this occasion was no exception as Dr. Lloyd pointed out when he heartily thanked the Class of Agriculture and Home Economics '53 for their generous donation to the College. The gift is to be used to provide benches, permanently installed around the College grounds, each bearing a plaque to commemorate the donors.

A further memento of the occasion was the presentation of eight 50th anniversary pins, which Dr. Lloyd gave out to honour the class of '33.

Macdonald College has earmarked as one of its main priorities the redevelopment and modernization of the farm buildings, many of which have been in existence and remained largely unchanged throughout the history of the College. Funds needed to realize this enormous task are to be raised, in part, by the recently publicized McGill 1983 fund raising campaign, the target of which is $61 million.

Dr. Jean David introduced the luncheon guest speaker, Dr. Sherman P. Touchburn of the Department of Animal Science. An expert in Nutrition and currently Associate Director of the Nutrition and Food Science Centre, Dr. Touchburn thanked both alumni and staff, in the name of the College, for their support of scholarship and research. He then gave an historical perspective of how the Nutrition Centre had come into existence against some surprising odds and attitudes.

The importance of nutrition was not readily accepted until the post-war years and, since 1973, the Crampton Award for Nutrition, annually conferred for the greatest contribution to nutrition, in memory of Dr. (Earle) Crampton, one of the earliest pioneers in this field, has become a prized accolade. The award recipient delivers the annual Crampton lecture. Dr. Eugene Donefer of Macdonald had this honour in 1982, and this year the recipient was Dr. T. Keith Murray, present at the Luncheon and celebrating his reunion with the class of '48.

Dr. Touchburn concluded on an optimistic note by saying that the link between medicine and nutrition has never been closer and that in the teaching of medicine the relationship between nutrition and good health has finally been realized and accepted.

Grant Ross gave a vote of thanks to Dr. Touchburn, who was presented with a silver tray in appreciation.

CLASS OF 1933

Highlighting the Macdonald luncheon, Dr. Lewis Lloyd honoured the 50th anniversary class of Agriculture '33 and the Diploma Agriculture '33 by presenting each graduate with a special 50th anniversary commemorative pin.

Present at the Luncheon from the class of Diploma Agriculture '33 were: J. Carman Goudrey, Howick, Que., Robert Hendrey, Bowmanville, Ont., Robert McElroy, Lachute, L.E. Roy, Caledonia, Ont., and M. Watkins, Avonmore, Ont.

In attendance from the class of Agriculture '33 were: J. Leslie Forsyth, Ottawa, John McDonald, Fitzroy Harbour, and Howard Parnell, Ottawa — all in Ontario.

Graduates Flock from Many Locations to Mac Reunion

The Macdonald Internationl Seminar presented by Dr. Eugene Donefer in the afternoon of Reunion referred to the fact that many Macdonald Faculty members frequently meet graduates when they are visiting or doing research in other countries around the world. The Reunion response this year pointed up this fact with representations from coast to coast in Canada, from major city centres in the States, and from other countries of the world. Graduates visiting from distant locations included:

Robert D. Hamilton, Agr. '59, Winnipeg, Man., Elizabeth Brynjolfson, H.Ec. '68, Langley, B.C., Freida Graham, H.Ec. '58, Calgary, Alta., G. Elaine Wills, Edmonton, Alta., Barb and Douglas Logsdail, H.Ec. and Agr. '53, Saskatoon, Sask., Martha Chamberlain, H.Ec. '53, Richmond, B.C., Jean Perry, H.Ec. '58, Greenfield. Ma., John E. (Ted) MacNintch, Agr. '58, Liverpool, N.Y., Celia (Moodie) Topping, H.Ec. '68, Penfield, N.Y., Anton Angelich, F.Sc. '73, New Milford, Conn., and Michael Johnston-Stewart, Agr. '73, from Geneva, Switzerland.

The last Macdonald Directory indicated that there were graduates in 38 States in the United States, in every province and territory in Canada, and in more than 62 countries around the world. An update of the current location of alumni from the College would probably expand that distribution even further.

Van Tours

Graduates and friends alike made the most of the weekend's fine weather by taking one of the van tours of the campus. Run on a very flexible schedule at frequent intervals during the day the vans toured the central campus, Farm, and Arboretum. It was a nostalgic trip for those who hadn't been back recently and who described the campus as having "changed beyond recognition."

Graduates of the Class of '58 met on the steps of the Centennial Centre before the Reunion Luncheon.

25th ANNIVERSARY CLASS TOASTED AT REUNION EVENT

The class of 1958 led by Allan Douglas was a force to be reckoned with throughout the day and particularly at the Reunion dinner-dance. The President of the Macdonald Branch, Peter Knox, proposed a toast to the Class of '58 (although it did sound like he said the Class of '53!). He congratulated them on such a good showing in their attendance from many distant locations.

Allan Douglas replied to this toast on behalf of his classmates and acknowledged the fond memories of Macdonald and toasted, "Macdonald College forever." The Reunion Chairman Steve Olive gave Dr. Lewis Lloyd an opportunity to become fortified over dinner before he was invited to respond to this toast to the College from the Class of '58.

At the close of the dinner, Dr. Lloyd, Vice-Principal of the College, acknowledged the special Macdonald spirit which was very evident throughout the day and was particularly strong throughout the dinner-dance program. He commented that the class of '58 seemed to be following in the footsteps of the class of '48 (his own class). He complimented them on their good response for Reunion and thanked them for their continued interest in the work at the College. As a special memento for their 25th reunion, Dr. Lloyd presented a silver anniversary pin with the Macdonald crest to each of the graduates of the class of '58. He explained that "It is my tradition to choose a special member of the class for the presentation," and he chose Judy (Herder) Woodford.

MACDONALD HONOUR SHIELD:

With an amazing 43 per cent of graduates in attendance, the class of Agriculture and Home Economics '58 was awarded the 1983 Honour Shield, given to the class with the highest percentage of graduate participation.

Participation from all Reunion classes was extremely enthusiastic. The classes of Agriculture & Home Economics '68 and '48 ran a very close race with a second and third percentage attendance respectively.

Thanks to all class chairmen who contributed largely to the success of this year's high attendance rate. One of the best in many years!

Several graduates of the Class of '68 gathered briefly at the Terrace Bar following their luncheon.

Meeting on the CC terrace are members and spouses of the Class of '53.

Class Gift — A Growing Tradition

what continues to be a long line of special class efforts, the graduates of the Class of '53 presented Macdonald College with a special Reunion gift at the Fall Homecoming.

The idea for the anniversary project was generated by a committee of Pat Reynolds, Doug and Barb Pashleigh, Moe and Pat Gerard, Bob and Terry Heslop, Eric and Jackie Bouffard, Neil Hanner, Doug and Barbara Logsdail. In presenting their gift to Dr. Lew Lloyd, they requested that it be used for a special campus care project. An enthusiastic spectator was Peter Knox, Branch President and Director of Campus Care and Security. The Dean acknowledged this thoughtfulness and concern of Macdonald graduates for the development of the renewed campus area and expressed the hope that a suitable project and engraved plaque would be a continuous reminder of the efforts of the class of '53 that future graduates of Macdonald College will appreciate this special support.

Steve Olive, Chairman of Reunion '83, greets Stephane Boily of the Class of '22. Mr. Boily was the oldest graduate in attendance.

Student Help

The reception area of the Centennial Centre was bustling with activity at Macdonald Reunion '83, not only with the many graduates who returned, but also with a corps of volunteers from the Diploma I class, who gave freely of their time to assist in giving directions, writing out name tags, helping with the registration desk, or performing other errands essential in the smooth running of each event. The staff are most grateful for this help.

Years Ending in 4s and 9s

We're already planning events for your next reunion on September 29th. Come back for more in '84.

(Continued from Page 33)

of Macdonald as it used to be; more recent events bear memories tinged with bitterness and his thoughts are perhaps best left unwritten.

A touch of tragedy, too, as he and his wife recall the accident on the railway tracks that claimed the lives of Alex Pinsky's first wife and his in-laws who were visiting Alex and his wife in the huts and wanted to tour the Farm and the Arboretum. "He took all three degrees here and then went to serve Israel. He visited us some years ago and brought his son and a daughter who were marvelous examples of physical strength and beauty. He particularly wanted to show them where he had studied."

Another photo brings memories of the farewell party given for Haddon by former students in Ottawa, and of students such as Keith Murray, who recently received the Crampton Award, who are so loyal about dropping in to see him when they are in the area. A series of snaps shot on a trip to Saskatchewan shows Bill and Edith White and their family. Bill stayed with the Commons for a sabbatic year of teaching at Macdonald.

Dr. Common said that next to climbing the Wendenstock, his most vivid memories are of the semi-centennial celebrations here at Macdonald. "Macdonald looked established and as if it were going places. Always the man with the apt phrase, Dr. George Dion was Assistant Dean at the time and when someone asked what an Assistant Dean was, he replied, " 'It's a mouse training to be a rat!' "

Dr. Common recalled that the booklet published to commemorate the occasion was proofread innumerable times and yet an incorrect date slipped by. This reminded him of his favourite piece of advice for students: "Always check your references — and then re-check them." Asked about some further gleanings of useful advice for present staff or students, he offered Common's 4th law of thermodynamics, "Work does not do itself," and cited the 10th Beatitude, "Blessed are they who expect nothing for they shall not be disappointed." This reminded his wife Renate of the notice that Dr. Common once put up in his laboratory: "When all else fails, read the instructions."

When the Commons arrived in Ste. Anne's in 1947, they had to have their children examined medically before having them admitted to school. They went to Dr. Kelso's office near the gates at Maple Avenue. Little did they know that those same quarters would be their comfortable home some 35 years later. (Dr. Harold Klinck of Plant Science bought the Kelso home and lives in the main part.) The Commons have seen their family of six grow up and leave the only town they have called home since leaving Ireland. They delight in visits from their family, in their walks through the campus, and the streets and parks of Ste. Anne's, their books, their memories, and their friends.

As the album was closed and Peter Schuepp was finishing refreshments, and it seemed to be the time to leave, Haddon Common reached over and picked up a favourite book, leafed through the pages, and started to read "one of the most wonderful bits of poetry that was ever written. It's from 'Little Gidding,' the last of T.S. Eliot's *Four Quartets* and he is reminiscing . . ."

"He left me, with a kind of valediction,
And faded on the blowing of the horn."

(Title and subtitles from *Four Quartets* by T.S. Eliot. Published by Faber and Faber, London, 1949.)

newsmakers on campus

Dr. W.E. Sackston, left, receiving a gift at the retirement party from Dr. Howard Steppler.

Dr. W.E. Sackston

Although Dr. Waldemar E. (Wally) Sackston (M.Sc. (Agr.) '40) was among those honoured at the annual retirement party held last spring, he has been ignoring his change in status in that he has neither given up his profession nor gone away. Instead, he still frequents the office and laboratory, and is supervising three graduate students. His major concession to retirement, so far, has been to vacate a campus house and relocate in his recently renovated home a short distance from campus.

Dr. Sackston joined the Faculty in 1960 as Professor, and served as Chairman of the Department of Plant Pathology for several years. During his time the plant pathology course offerings were organized, a virologist was added to the staff, and physical facilities were upgraded.

Since Dr. Sackston is known worldwide as an authority on sunflower diseases and is also proficient in several languages, he has made various journeys as an advisor or consultant, and served from 1972 to 1977 as Research Coordinator at the newly established National Research Centre for Oilseed Crops in Cordoba, Spain.

Dr. Sackston's research in plant pathology has produced more than 135 publications, and he has directed the research of 22 graduate students. He is a member of various scientific societies and has served as associate editor for several journals. He is frequently requested to serve as an invited speaker or as chairman of a scientific meeting and has been honoured by the Quebec Society for Plant Protection, the Canadian Phytopathological Society, and the International Sunflower Association.

DR. ROGER TITMAN was appointed Chairman of the Department of Renewable Resources effective June 1, 1983. Professor Titman was brought up in Lachute, Quebec, where his parents still live. He obtained a B.Sc. from McGill, an M.Sc. from Bishop's University in Lennoxville, and a Ph.D. from the University of New Brunswick in Fredericton. Research for his two graduate degrees was conducted at the Delta Waterfowl Research Station on waterfowl ecology, which continues to be his main area of interest.

At their Annual Meeting **PROFESSOR PAUL C. LAGUE,** of the Department of Animal Science, was elected Vice-President of the Ordre des agronomes du Québec. **SERGE LUSSIER,** of the Department of Plant Science, is President of the Ste. Anne de Bellevue Branch.

PROFESSOR HOWARD STEPPLER, Department of Plant Science Chairman, has been elected to the Board of Trustees of the International Council for Research in Agroforestry (ICRAF), Nairobi, Kenya.

PROFESSOR PIERRE JUTRAS, Department of Agricultural Engineering, was elected President-Elect of the Canadian Society of Agricultural Engineering.

Department of Agricultural Chemistry and Physics's **I. ALLI** and Animal Science's **EDUARDO CHAVEZ, GENE DONEFER, FLAN HAYES, JOHN MOXLEY,** and **ANDRE NG** attended the 5th World Conference on Animal Production held in Tokyo. There were approximately 1,200 participants.

DHAS Manager **NORMAN CAMPBELL,** Dip '66, not only keeps in touch with fellow Diploma students by reading Diploma Corner (by the way, he congratulates Jim Currie for the good job of writing that he is doing), but he also visits former classmates and friends while on holidays. During a recent short visit to the Barrie area of Ontario he visited Joanne, Dip '66, and Jack Duckworth, Dip '68, and Kris, B.Ed. '67, and Jimmy Johnston, Dip '66. Jack is with Saputo Cheese Company in Cookstown and Jimmy is with the Truck and Tractor Division of John Deere in Orillia. Both families are well and send greetings.

PROFESSOR J.E. McFARLANE of the Department of Entomology has been named a Fellow of the Entomological Society of Canada in recognition of his contribution to entomology.

DR. JOHN BAIN joined the staff of Plant Science. He comes to us from the University of Alberta where he served on staff for a number of years. Taking sabbatical leaves this year are: **OSAMA AL-ZAND,** Agricultural Economics; **WILLIAM GRANT,** Plant Science, who among other things will visit research laboratories in Japan at the invitation of the Japan Society for the Promotion of Science and will spend a month at Jordell Laboratory, Kew, England; **ALAN WATSON,** Plant Science, who has a long list of

projects including strengthening his cooperative research in biological weed control with scientists at USDA laboratories in Frederick, Maryland, and Stoneville, Mississippi, and **WILLIAM YULE,** Entomology, who has been working with Professor J.R. Duffy and colleagues in the Chemistry Department at the University of P.E.I. He also plans visits to the U.K.

RON BARRETT retired from Agricultural Chemistry and Physics where he has served for the past 13 years as Demonstrator then Faculty Lecturer.

GILLES BOLDUC has joined the staff of the Department of Agricultural Engineering. He will teach courses in structures and environment engineering.

Returning to teaching duties after sabbatic leaves are: **MAMDOUH FAMOUS,** Agricultural Chemistry and Physics, who was at Oklahoma State University; **JORDAN INGRAM,** Department of Microbiology, who was at the University of Georgia; **HAROLD KLINCK,** whose activities are described elsewhere in this issue, **PAUL LAGUE** of Animal Science, and **NORMAN LAWSON,** of the Diploma Program and of Plant Science, who visited the U.K., U.S., New Zealand and Australia, **LYNN HARASYM,** previously Provincial Nutritionist with Saskatchewan Health, has joined the staff of the School of Food Science.

HENRY GARINO and **SHERMAN TOUCHBURN,** Animal Science, spent two weeks in Oman as consultants on research programs for the Oman Ministy of Agriculture.

STUART HILL, SUSAN JOHNSON, and graduate student **LINDA GILKESON** gave talks at the ninth annual Natural Organic Farmers Association Conference held at Johnson State College in Vermont. Professor Hill also visited former graduate students **DICK ROGERS** and **DR. JEAN-PIERRE LeBLANC** in Nova Scotia. Dick Rogers is working with Dr. Roger MacLellan on integrated pest management in orchards in collaboration with the federal/provincial research station at Kentville.

off campus

R.E. DEAN, B.Sc. (Agr.) '51, with Alchem Limited, was recently transferred to Kamloops, B.C. from Montreal. "My responsibilities include all of the Okanagan Valley and east to Trail and Castlegar. Great country and lots of sunshine!"

Joy (Welden) MacKiddie, B.Sc. (Agr.) '52

Up until last spring we lived in Niagara-on-the-Lake where we had a five-acre farm devoted to peonies and vegetables. We also had a greenhouse which, every spring, was bursting with hanging baskets and bedding plants of all descriptions.

This past spring we sold and moved to Guelph where we are living at a more moderate pace. We still live in the country and have a couple of acres. We are continually amazed at the beauty of this area — from the geese that fly noisely overhead to the deer that slip quietly down to our pond for a drink. There are all sorts of little wild creatures: rabbits, squirrels, chipmunks, and a few I can't name. Never saw these creatures before in my life. The plants are different. I tried my utmost to grow coreopsis in Niagara, but it died despite all my care. Here it is a wild flower, flourishing. Gailardia is also a wild plant here. And then there are some very pretty tall pink things that look like stocks. Gerry Mulligan where are you? You should investigate this area for your wild plants book. Thought my former classmates would like to know where I am. Is there a Macdonald or McGill Branch up here?

THE REV. THOMAS EDMONDS, B.Sc. (Agr.)'57, received a McLeod Scholarship for the 1983-84 academic year from the Division of Ministry Personnel and Education of the United Church of Canada. At the time he received his scholarship, Mr. Edmonds was the Director of Studies at the United Theological College, associated with McGill. He had been a missionary with the United Church in Brazil and, upon his return to Canada, became very involved with the work of the Division of World Outreach. He is using the scholarship for his Doctor of Ministry studies at the Christian Theological Seminary at Indianapolis, Indiana.

C.R. WOOD, B.Sc. (Agr.) '77, is the Regional Hygiene Officer, CN Medical Services, Great Lakes Region, Toronto, Ont. "In the near future I plan to enroll in the M.H.Sc. program at the University of Toronto, specializing in Occupational Health and Safety."

CLAUDIO RAMIREZ, M.Sc. (Agr.) '79, is with CIDA as a professor in animal science in Rwanda, Africa.

JOHN MacQUARRIE, B.SC. (Agr.) '81, was recently appointed to the position of Potato Disease and Disinfection Administrator, Plant Industry Service Branch of the P.E.I. Department of Agriculture.

MARIO THERRIEN, Ph.D. '81, recently joined the staff of the Agriculture Canada Brandon Research Station as barley breeder/geneticist. After receiving his doctorate, he went to the Winnipeg Research Station on an NCR Post-Doctoral Visiting Fellowship, where he investigated gene transfer of stem rust-resistance from wild to domestic oat species. At Brandon Dr. Therrien plans to work towards the breeding of new and improved barley varieties. Emphasis will be placed on selecting varieties suited to a particular region. As he points out, "Plant breeders should be working to tailor varieties to suit the needs of a particular area. The barley that does best in the Parkland belt is not necessarily the best one for the brown soil zones of Saskatchewan. We should be taking this into consideration in our breeding programs and our variety recommendations."

deceased

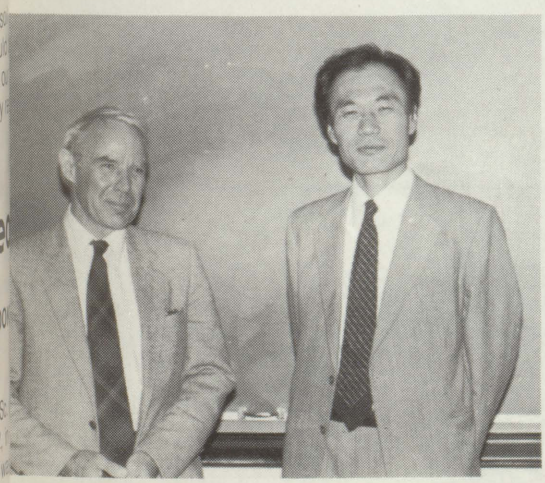
OSBORNE ALVIN COOKE, B.S.A. '14, in Victoria, B.C.

JEAN B. MALTAIS, M.Sc. (Agr.) '28, on September 10, 1982, in Chambly, Que. Mr. Maltais, who was with the federal Department of Agriculture for 35 years, was one of the first two French-speaking Canadians to obtain his Masters in Entomology.

Dr. A.F. MacKenzie, Associate Dean, Research, hosted a delegation from the Peoples Republic of China. The group's tour of Canada was organized by Dr. L. Sanders of the Potash and Phosphate Institute of Canada. Dr. Bruce Downey of the Department of Animal Science joined in the tour of the Campus in order that he might renew his contact with Mr. Lin Lougeng, a member of the group, who was Dr. Downey's interpreter when he visited China recently.

g the student garden, which was under the excellent care of 3rd tudent Aline Grenier, is Professor Katrine Stewart of the Depart- f Plant Science and her guest Dr. Jim Gutman. Now a medical doc- Gutman spent some time at Macdonald working towards a Masters the guidance of Professor A.K. Watson.

A Canada Committee on Animal Management met at Macdonald recently; from left to right are: Gordon Barnett, Lennoxville Research Station, John Turnbull, Agriculture Canada, Ottawa, Ross Bulley, University of British Columbia, and Yvon Martel, Lennoxville Research Station.



cent Agricultural Economics Seminar Gordon Thomson, Ministry of Agriculture and Food, introduced the guest r Dr. Kenji Horiguchi, from the Department of Agricultu- nomics at the Tokyo University of Agriculture.

Dr. Essam Shawki and Dr. Awatif Shawki, Soil Scientists from Cairo, visit with Agricultural Engineering and Soil Science graduate students and staff involved in drainage and land improvement work.

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